

The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XV. No. 384

NOVEMBER 6, 1926

Prepaid Annual Subscription:
United Kingdom, £1.1.6; Abroad, £1.6.0.

Contents

PAGE

EDITORIAL NOTES: The New "I.C.I."; The Annual Chemical Dinner; The Conference of Fuel Experts; Substitutes for Ethyl Alcohol; Chemists in Liverpool; Higher Sulphate Prices	443
Death of Mr. and Mrs. Roscoe Brunner; Correspondence: Research on Therapeutic Chemicals; German Railways Information Bureau	446
Chemistry and Civilisation	447
Annual Meeting of the B.A.C.	448
Dr. Armstrong's Hurter Memorial Lecture	450
New Details of Imperial Chemical Industries, Ltd.	451
Colouring Matters in Foodstuffs	452
From Week to Week.	453
References to Current Literature	454
Patent Literature	455
Weekly Chemical Prices and Market Reports.	457
Company News; Tariff Changes; Trade Inquiries	462
Commercial Intelligence; New Companies; New Trade Marks ..	464

Monthly Metallurgical Section: Metallurgy and Uses of Tin,
by Dr. G. M. Dyson.

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

Telegrams: "Allangas, Fleet, London."

Telephone: City 0244

The New "I.C.I."

THE title of the new British chemical combine is to be "Imperial Chemical Industries, Ltd.," and since our last issue preliminary particulars of the terms of amalgamation have been published. The terms, which are set out in detail on another page, have yet to be formally accepted by the shareholders of the four concerns, but in view of the present advantages and still more of the potential possibilities we cannot imagine much hesitation on the part of shareholders. The combined capital of the four companies was formerly about £40,000,000. This is now to be increased to £56,802,996. An increase of over £16,000,000 in itself is a big item, but in view of the economies to be effected, the increase of efficiency, and the opportunities for extension into new fields by the elimination of competition and the unification of energy and resources, it need cause no anxiety.

The exclusion of internal competition and the dovetailing of the interests of the four concerns seems to us one of the most important and promising features of the amalgamation. Closely allied as the four already were in the fields they served, it was inevitable that the expansion of any one must to some extent trench on the ground of the others. It has always been, fortunately, competition of the most friendly

character, but its restrictive influences were always present in a latent, if not in an active, sense. It will be present no longer. New ground can now be allotted to each of the four, and every extension will have behind it the united resources of the whole body.

Unified and centrally directed as the "I.C.I." will be as soon as the amalgamation becomes effective, it is easy to appreciate the enormous increase of strength that must presently ensue. Research work, admittedly the basis of all real progress, will be immensely strengthened. In this and in several other respects wasteful overlapping will now be avoided, and the fullest value will thus be obtained from the staff. The new arrangement will also render unnecessary the duplication of stocks which the separate companies have had to maintain; it will be possible to arrange for common and more economical services of various kinds, and economies will also be realised in capital expenditure on new works. Another important point is that the "I.C.I." will be able either to compete or to agree with concerns of similar character and magnitude on the Continent and in the United States. The combined capital is understood to be roughly about equal to that of the I.G. Farbenindustrie.

The new central board of control includes the responsible heads of the four companies, and each section will continue to have the advantage of the present administrative and technical directors. The directorate, both central and sectional, is distinguished for its financial, commercial, administrative, and technical strength. Two new names appear in the central directorate—those of the Marquis of Reading and of Sir Josiah Stamp. The former will bring a rare gift of legal and commercial acumen to the board and the latter's connections and experience will also add to its qualifications. The ability and smoothness with which this huge transaction has been carried through sufficiently indicate the business qualities of those responsible, and though the full benefits of the merger may not fully appear for some little time to come, no doubt need be felt as to the ultimate benefits which the chemical industry and indeed national interests generally are certain to derive.

The Annual Chemical Dinner

THE annual chemical dinner, fixed for Friday, November 12, at the Connaught Rooms, London, and representing no fewer than ten chemical organisations, promises this year to be predominantly a social function. Long and numerous speeches—a term that correctly describes some past efforts—are said to have become very unpopular in chemical circles. On this occasion only three speeches will be permitted and they are not to exceed ten minutes each. This represents a severe reaction. Despairing of discovering that entertaining person the ideal after-dinner speaker, the organisers have prudently followed the principle of

"safety first" and are taking no risks. The chief speaker will be the chief guest, Sir Duncan Kerley, K.C., who will propose the toast of "The profession and industry of chemistry." Sir Duncan, whom we suspect of possessing a dry sense of humour that may give us a few moments of pleasure, has many professional associations with the chemical industry; he took a leading part in many cases fought under the Safeguarding of Industries Act, and he was engaged in the famous "mustard gas" claim. Professor F. G. Donnan, who will preside at the dinner, will reply for the profession, and Mr. Francis H. Carr, the President of the Society of Chemical Industry, for the industry. There is some expectation that Mr. Carr may have something interesting to say on the subject of "Chemistry House."

The dinner having begun at 7.30 p.m., it is expected that the speaking will be over by 9.15 and the rest of the evening up to midnight will be given up to dancing. The music during the evening will be supplied by the British Imperial Orchestra. Although the dinner and the other features will be fully up to previous standards, the price of tickets (ladies and gentlemen) has been reduced from 15s. to 12s. 6d., and a very large company may reasonably be expected. The dinner and dance are open to all chemists and friends without restriction, and tickets may be obtained from Mr. S. E. Carr, assistant secretary of the Chemical Society, Burlington House, London, W.1, and not from the secretaries of the various societies. In view of the limited accommodation and the prospect of a large attendance, early application is advisable; it should be made in any event before Monday next.

A Conference of Fuel Experts

A FUEL conference attended by Bergius and Fischer from Germany, Patart from France, Lander, Lessing, and others from England, and a whole group of American fuel technologists and engineers, should be an occasion of world-wide scientific interest. Such a meeting will actually be furnished in the four days' international conference that the Carnegie Institute of Technology announces to be held at Pittsburgh, U.S.A., on November 15, 16, 17 and 18. The purpose of the conference is to consider new uses for bituminous coal and to present the results of recent investigations concerned with improved methods of utilisation and combustion, and so representative is the attendance that one may expect the meeting to register the very latest views and information in this important field. From the purely scientific point of view, such a gathering is of universal interest; from the United States standpoint the interest is even more acute. The recent report of the Federal Oil Conservation Board to President Coolidge contains the alarming conclusion that only a six years' supply of petroleum remains in the proven sands of the United States, and any possibilities of obtaining substitutes for gasoline from coal present a special fascination both for the scientist and for the industrialist. Other general problems to be discussed include the complete gasification of coal, high temperature distillation, low temperature distillation, coal tar products, power, smokeless fuel, fertilisers, etc.

Some time ago we drew attention to the visits of American oil technologists to Europe for the purpose

of getting in touch with Patart, the French expert, whose process for the production of methyl alcohol from coal was regarded as a possible means of meeting the serious menace with which the American wood distillation industry was threatened by German "methanol." There is a certain piquancy, therefore, in the announcement that General Georges Patart will be present in company with the two German investigators, Dr. Bergius and Dr. Fischer. Dr. Friedrich Bergius of Heidelberg, who is already in the United States, has undertaken to describe the features and possibilities of the Bergius process for the transformation of coal into oil by hydrogenation, while Professor Franz Fischer, director of the Coal Research Institute at Müllheim-Ruhr, will similarly discuss his own process for the production of liquid fuel from water gas. General Patart, who left for America this week, has undertaken to explain his process for the production of methyl alcohol from coal. There appears to be no representative of the Badische methanol process, but even so the contributions on the state of European research should be of uncommon interest and value.

It is satisfactory to find that this country is to be adequately represented by four delegates in the discussions. Dr. C. H. Lander, Director of the Fuel Research station, will deal with the present status of low temperature distillation of coal in England, Dr. R. Lessing with coal and its mineral matter, Mr. Geoffrey M. Gill with English developments in carbonisation of coal in gasworks, and Mr. H. Nielsen with the L. and N. process. Nineteen contributions from American fuel experts will be presented, covering a very wide field. Pittsburgh, where the conference is to be held, is the centre of a very important experimental station of the Bureau of Mines. Mr. A. C. Fieldner, its chief chemist, who is reading a paper on the practical value of fundamental research on coal, was over here some time ago on an exhaustive tour of inspection and returned with a good impression of our scientific and technical organisation.

Substitutes for Ethyl Alcohol

IN connection with the appointment of the Inter-Departmental Committee on Substitutes for Ethyl Alcohol, the legal and parliamentary committee of the Institute of Chemistry have had under consideration a memorandum prepared by Messrs. J. W. Blagden, Oliver Chick, Bernard F. Howard, and S. Gorden Liversedge. The memorandum which has been forwarded to the Inter-Departmental Committee is an altogether admirable statement of the case for the unrestricted duty-free use of many industrial solvents which may conceivably, in the future, be labelled by a legal quibble substitutes for ethyl alcohol. It is drawn up on the basis of a discussion of the terms of reference of the Inter-Departmental Committee, which were: The maintenance and safety of the spirit revenue; the various uses to which the substitutes may be put; the public health; and the desirability of avoiding any restriction which might unnecessarily hamper trade progress or discourage experiment.

It is impossible in the space at our disposal to deal fully with the document, which deserves the careful study of all chemists and chemical manu-

facturers. Reference may be made to the valuable summary of the development and use of such substances as propyl alcohol, isopropyl alcohol, ethylene glycol, cyclohexanol, etc., and their esters, in which the signatories indicate the menace to manufacturers and users of organic solvents which is contained in the contemplated restrictions. The real crux of the matter arises out of the reference to "the maintenance and safety of the spirit revenue." The memorandum points out that "It is evidently the main object of the [Inter-Departmental] Committee to protect the spirit revenue from possible loss arising from the use of substitutes. . . . The decline in the spirit revenue is traceable to two causes: (1) the diminished purchasing power of the public, of the middle classes, and (2) the greater sobriety of the nation." The latter point deserves close attention. The drink restrictions which have been in force since the war must, if they succeed in their object, affect the spirit revenue. These restrictions have been continued by a series of Governments, from which it may be logically concluded that there is a belief by Governments in general that a decline in spirit revenue is preferable to a drunken nation. It is now proposed to "protect" the spirit revenue by putting restrictions on the use in chemical manufacture of substances which have been developed solely on account of restrictions on the use of alcohol. The injustice of the matter is aggravated by the fact that (as the signatories to the memorandum state): "We are confident in stating that of all known substitutes not one can be regarded as potable or has actually in this country been used as a substitute for, or in addition to, ethyl alcohol in potable liquors."

It is fair to assume that the moving spirit in this affair is the Treasury, which (in spite of the pious reference to avoiding restrictions which might hamper trade or experiment) apparently sees no distinction between the use of alcohol for reducing personal efficiency and the use of its substitutes for increasing industrial efficiency. The Treasury is the right hand of the Government; the right hand and the left hand carefully refrain from letting one another know what they are doing—with the usual happy results.

Chemists in Liverpool

IN delivering the Hurter Memorial Lecture in Liverpool last week Dr. E. F. Armstrong touched, among other things, on nitrocellulose lacquers. These substances are of great and growing importance, as in addition to their use on motor-cars they probably have a great future for other purposes. This is one of the directions in which there is great need and scope for research, and in which the new chemical combine may lead to results of considerable importance. From the collaboration, for example, of the technical experts of the British Dyestuffs Corporation with those of Nobel Industries developments of the highest interest may emerge. At the annual meeting of the B.A.C. in the same city quite a favourable outlook was disclosed, the financial position being better than a year ago and the membership having been increased and strengthened. Some of this improvement is no doubt due to the energetic leadership of Mr. Garland, the retiring president, and the Association may be congratulated on having secured as his successor such a distinguished research chemist as Professor G. T.

Morgan. During the proceedings reference was made to the great chemical combine by Sir Max Muspratt, Mr. Garland, and other speakers. It is satisfactory to find such a united feeling among all classes of chemists as to the good effects in regard both to the industry and to the science of chemistry that such a pooling of resources is bound ultimately to have.

Higher Sulphate Prices

AN increase of sulphate of ammonia prices is announced by the British Sulphate of Ammonia Federation. Owing to the continuation of the coal stoppage the Federation is having to ship sulphate of ammonia for the home market, which would otherwise be sent by rail, and is incurring heavier railway carriage. It is in view of this that the Federation has decided to increase the prices of sulphate of ammonia by 5s. per ton as from November 1. The increased prices for sulphate of neutral quality will be as follows: November, £11 16s. per ton; December, £11 18s.; January, £12; February, £12 3s.; March, April and May, £12 6s. All other terms and conditions remain as in the Federation's circular of July 31 last.

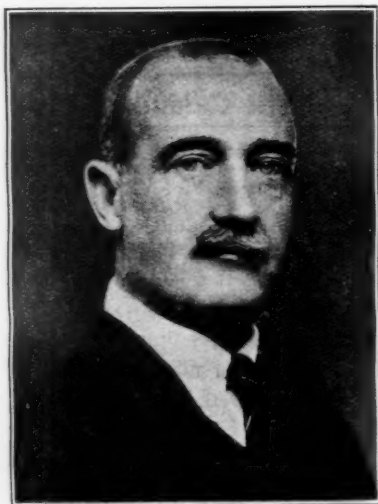
The Calendar

Nov. 8	Ceramic Society: "Systems of Oil Firing and their Possible Applications to the Potteries." F. L. Bolt. 7.30 p.m.	Central School of Science and Technology, Stoke-on-Trent.
8	Institute of Chemistry (Bristol and S.W. Counties Section): "Alchemists and Chemists in Art and Literature." R. B. Pilcher. 5.30 p.m.	University, Bristol.
8	Institute of Metals (Scottish Section): "Die Casting." George Mortimer. 7.30 p.m.	39, Elmbank Crescent, Glasgow.
9	Institution of Petroleum Technologists: General Meeting. 5.30 p.m.	House of the Royal Society of Arts, John Street, Adelphi, London.
10	Chemical Engineering Group: "Moulding and Vulcanisation of Rubber Articles." Harry Willshaw. 8 p.m.	Burlington House, Piccadilly, London.
11	Institute of Chemistry (Liverpool and N.W. Section): Annual General Meeting.	St. George's Restaurant, Redcross St., Liverpool.
11	Optical Society: Ordinary Meeting. 7.30 p.m.	Imperial College of Science and Technology, South Kensington, London.
11	Institution of the Rubber Industry (Manchester Section): "Rubber Softeners." W. N. Burbridge. "The Effect of Solid Compounding Ingredients as Softeners." E. A. Hurlston.	Textile Institute, St. Mary's Parsonage, Manchester.
11	Birkbeck College: Public Lecture on Atoms and Isotopes. Dr. F. W. Aston. 5.30 p.m.	Bream's Buildings, Fetter Lane, London.
12	Chemical Dinner, arranged by Associated Chemical Societies. 7.30 p.m.	Connaught Rooms, London, W.C.
12	Institute of Metals (Sheffield Section): "Ingots and Ingot Making." H. Brearley. 7.30 p.m.	University, Sheffield.
12	West Cumberland Society of Chemists and Engineers: "Recent Researches in Coke and Blast Furnace Technology." E. C. Evans. 7 p.m.	Workington.
12	Institute of Metals (Swansea Section): "Zinc Smelting and Recovery of its By-Products." J. H. Wells. 7.15 p.m.	University College, Singleton Park, Swansea.
12	King Edward's Hospital Fund for London: "Liquid Air." W. E. Garner, M.Sc. 5 p.m.	Fyvie Hall, Polytechnic, Regent Street, London.

Mr. and Mrs. Roscoe Brunner

Found Shot in a Bedroom

THE distressing news was published on Thursday morning that Mr. Roscoe Brunner and his wife had been found shot in a bedroom at Green Cottage, Roehampton, the residence of their daughter, Princess Liechtenstein. Mr. and Mrs. Brunner recently purchased Roehampton Court, a fine mansion, and while this was being furnished they took up their residence at Green Cottage during the absence on the Continent of the Prince and Princess. Early on Wednesday evening, in response to a telephone call from his wife, Mr. Brunner motored home from the Bath Club. Intending to return to town, he left his car and chauffeur outside to drive him back, and went up to the room on the first floor, where the tragedy happened. This room is the one which was used by Princess Liechtenstein as a bedroom, and Mrs. Brunner was not only sleeping there but, on account of the coal shortage, was using it as a general living and working room. As Mr. and Mrs. Brunner were in this room a long time, and the latter had ordered a meal to be served there for herself when her husband had left, a maid knocked on the door about half an hour before the tragedy. Mrs. Brunner called out, "Don't come in yet." Naturally there was some doubt by the staff as to what should be done since Mr. Brunner, whose chauffeur



THE LATE MR. ROSCOE BRUNNER.

was still waiting outside, was expected to leave much earlier, and it was long past the hour for which his wife had ordered her meal. Shortly after ten, shots were heard, and on entering the room a member of the staff found Mr. and Mrs. Brunner lying on the floor, both shot dead. A revolver is stated to have been found in Mr. Brunner's right hand. The circumstances of the tragedy may be disclosed at the inquest.

Throughout the chemical industry, and indeed in every circle where Mr. and Mrs. Brunner were known, the news will be received with the profoundest sorrow and sympathy. Mr. Brunner is still generally described in the Press as the chairman of Brunner, Mond and Co., but this is a mistake. Some months ago he retired from the post on account of the state of his health and was succeeded by Sir Alfred Mond, and it will be noticed that his name does not appear on the new board of the "I.C.I." For a considerable time Mr. Roscoe Brunner presided over the great concern founded by his father and Dr. Ludwig Mond, and it is possible that the great strain of the responsibility, coupled with his eager interest in everything he did, may have overtaxed his strength. For some time he had refrained from public and commercial work as far as possible, but only a few days ago it was announced that he had joined the Conservative Party. For some time his elder brother, Sir John, sat for Northwich in the Liberal interest.

Mr. Roscoe Brunner, who was 55 years of age, was the second son of the late Sir John Brunner, and had devoted

his whole life to the work of the business. He was a hard worker and a very capable director, and was universally liked for his bright personality, his friendly nature, and his social instincts. When he presided over the jubilee dinner of Brunner, Mond and Co., it was remarked how young and fresh he looked for so responsible a position, and many will recall Sir Max Muspratt's recollections of their early days as boys, when they were known as "Ros" and "Max." The announcement of so sad an end to so successful a career can produce only one feeling—a universal sense of sorrow and deep sympathy with the family and all their friends.

Mrs. Roscoe Brunner, whom he married in 1898, was formerly Miss Edith Houston, a daughter of the late Mr. Arthur Houston, K.C. She was a woman of brilliant gifts in many directions, particularly in art and literature, and was the author of several books which attracted notice on account of their imaginative qualities and their insight into social and economic problems of the day. Among the best known were *Celia and Her Friends*, *Celia Once Again*, and *Celia's Fantastic Voyage*. She was a well-known figure in London society.

Research in Therapeutic Chemicals

To the Editor of THE CHEMICAL AGE.

SIR,—The recent merging of the outstanding British chemical companies into a single organisation is hailed by scientific men as one of the greatest steps towards the economic prosperity of the chemical industry. For the first time in history, Britain will be able to bring to bear upon the problems of organic chemical research an adequate organisation, and it would be an impertinence on my part to discuss, in this connection, the general questions of research in industry. There is, however, one aspect of this question to which I would like to draw particular attention—namely, the application of research to medicinal and therapeutic organic chemicals.

The last twenty or thirty years have seen the advance of medicine in the direction of accurate recognition of the nature of disease, and the discovery of the infective agents causing it. While there is, undoubtedly, an economic advantage to be derived from this prosperity and advance of huge commercial organisations, one of their fundamental duties to humanity lies unfulfilled if disease and suffering are left for their suppression to the chance efforts of isolated investigators. Many diseases—syphilis, tuberculosis, malaria, sleeping sickness, to mention only a few—are among the scourges which exact an untold tribute of misery from millions every year, and although the cause of these troubles is accurately known, in only a few cases is any selective drug available. It cannot be too strongly insisted upon that the present condition is one which need not endure.

Although, whilst congratulating the German investigators upon their achievement which has culminated in the introduction of drugs of the type of Salvarsan and Bayer 205, we may envy the facilities and resources upon which they are able to draw, it should be realised that there is now no obstacle in the way of establishing such facilities for ourselves and, quite apart from commercial rivalry, it should be a question of honour with us to push on in the same direction in an effort to free humanity from some of its scourges. In this connection, too, I would like to recall the words of the President of the American Chemical Society:—

"... synthetic organic chemistry will prove itself to be, perhaps, the most potent factor of all those that are working towards the advancement of civilisation and the peace of the world. I refer to the use of chemical compounds in combating disease and, as a result, prolonging life... the modern science of chemotherapy. ... Malaria, spread in the most fruitful part of the globe, is incapacitating and destroying millions, and we have used but one drug—quinine—to fight it."

Thus not only are Britain's human resources concerned, but the whole untapped resources of Empire, now locked up by the spectres of malaria and sleeping sickness, might be released.

What is needed is the vision and broadmindedness of a commercial organisation, such as that just formed, that will make possible the formation of a band of synthetic organic chemists, biochemists, and medical men, who, freed from the trammels of routine, will be able to work together upon

chemotherapeutic problems. More also is necessary; the men concerned must be able, not only to place their hands upon every known compound, process, and method of treatment, but they must also be able to appreciate the difficulties of each other's craft. The medical men must realise that the task of building up the necessarily complex substances which alone seem to have therapeutic value is a matter for careful thought and patient experiment; the chemist must realise the intense difficulties of obtaining and correlating medical and clinical data; and above all the commercial organisation which endows such a project must be prepared to wait, not months, but years for the fruitful results which must of necessity arise from such a combination of resources.

Finally, it appears to me to be a cogent argument that if for economic reasons the cotton industry found itself able to finance research on textiles, then the chemical industry should, for humanitarian reasons, finance research for the full utilisation of the resources of chemistry.—I am, etc.,

ARNOLD RENSHAW, M.D.

Laboratory of Applied Pathology
and Preventive Medicine, Manchester.

German Railways Information Bureau

To the Editor of THE CHEMICAL AGE.

SIR,—As no doubt a large number of your readers are interested in foreign travel, I have much pleasure in informing you that the central office for propaganda and tourist travel of the German State Railway Co. has now opened an inquiry office at the Plaza Building, 19, Regent Street, London, S.W.1, for the purpose of giving information regarding travelling, etc., in Germany, as well as for distributing (free of charge) illustrated booklets and pamphlets describing various places of interest, health resorts, etc.

The German Railway Co. feels that the time has come to bring before the great English travelling public the attractions of the numerous health and pleasure resorts in Germany, with the object of re-establishing the visits of the English *clientèle* which existed before the war.

The aim of this new office will be to remove any misconception that may exist to-day in the minds of English travellers as to conditions prevailing at German resorts. The prices ruling to-day at these places (which were so well known before the war) are only very little higher than those which prevailed 12 years ago. The language difficulty need not deter anyone who does not speak German, as English is spoken and understood practically everywhere, and intending visitors will not only receive a cordial welcome but satisfaction in getting good value as far as accommodation and food are concerned.

No tickets whatsoever will be sold at the German Railway Information Bureau, as it is our intention to give every possible assistance to the various travel offices and tourist agencies in this country.—I remain, etc.,

19, Regent Street,
London, S.W.1.

OTTO MANN.

November 1, 1926.

A Feature for the Lord Mayor's Show

THE annual pageant which accompanies the new Lord Mayor through London on November 9 will this year include a feature of uncommon interest. The Lord Mayor-Elect, Sir G. Rowland Blades, M.P., whose private residence is in Leatherhead, has always taken a keen interest in local fire brigade matters, and recently performed the opening ceremony at the new fire station which now houses the new motor fire engine provided for the Leatherhead and District Fire Brigade. On the same day Sir Rowland's little daughter, Miss Janet Blades, christened the engine "Margaret Blades," in honour of the new Lady Mayoress. Having witnessed a demonstration of the engine's pumping capabilities and taken a short journey on the machine, Sir Rowland asked the Council to permit the engine to be included in the Lord Mayor's Show. The Council cordially agreed, and those who witness the procession will therefore have an opportunity of seeing the latest model in fire engine construction, particulars of which are as follows: the machine has a motor of 50 horse-power and is fitted with a Merryweather patent "Hatfield" pump capable of pumping 350 gallons of water per minute at a pressure of 135 lb. per square inch.

Chemistry and Civilisation

Professor G. G. Henderson at Manchester

THE annual meeting of the Manchester Section of the Institute of Chemistry was held on Monday, October 25, Dr. H. Levinstein presiding.

Dr. Levinstein said that the question of registration, with which Mr. F. Scholefield had so closely identified himself, had occupied a good deal of the time and attention of the Committee of the Manchester Section, which had also been in close co-operation with the Liverpool Section. As a result of their respective deliberations, a statement had been drawn up and submitted to the Council of the Institute. At the last meeting of the Manchester Sectional Committee, it was decided to continue the movement in favour of registration, and to devote their next effort towards securing the assent, if possible, of the governing body to the proposition, emphasising not only the advantages to be derived by members of the chemical profession by registration, but by the general public also. In order to be successful in their endeavour, chemists would have to press for legislative enactment, and with this end in view, it was necessary to carry the public sympathy with them, and to demonstrate that registration was a means of protecting the nation at large.

Professor G. G. Henderson, president of the Institute, delivered an address to the members on "The Chemist and the Community."

Professor Henderson said that most people were pathetically ignorant of the part which the chemist played in promoting the welfare of the community and ameliorating the conditions of existence. The work of Government departments and the municipalities could not at the present day be carried on efficiently without the aid of the chemist. In medicine the chemist had provided the physician not only with the active principles extracted from innumerable drugs, but also with a vast number of synthetic medicines and with many sorts of serum preparations. Recent advances in physiology were largely the result of the labours of biochemists, whilst in the safeguarding of public health vitally important matters—the detection and prevention of the adulteration or pollution of foods, water and air, and the treatment of sewage—were necessarily entrusted for the most part to members of the chemical profession.

Aspects of Chemical Activity

In industry also, apart from the purely chemical industry, said the professor, much depended upon the work of the chemist. What, for example, would be the position of agriculture without his guidance in questions relating to soils, water, fertilisers, and foodstuffs? It would hardly suggest itself to many that a cotton spinner, a baker, or a dairyman could find a use for chemists, but in fact they did, as also did many others engaged in manufactures of the most diverse kinds. One reason for the indifference of the public towards chemistry was that the products of chemical work did not impress themselves on the eye of the man in the street as did the achievements of engineering skill. Soap and soda, drugs and dyes, and beer and borax were more or less familiar substances which did not excite in the mind of the average man any speculation as to the skill of the men who produced them. Another reason was that chemists were not sufficiently assertive in their claim to recognition of the part which they played in the life of the community. In his judgment, chemists must first of all form themselves into a united body, which might speak with authority as representing the whole profession, and, secondly, they must also endeavour to educate the public. They must have a professional organisation which could approach the Government or the public on any matter with the claim that it could speak for all the qualified chemists of the country. To impart to the public much-needed information regarding the widespread activities of the chemist they could not do better than appeal to what was, or might be, a great instrument of education—the Press.

Mr. L. Guy Radcliffe, chairman of the Manchester Section of the Society of Chemical Industry, said that the greatest obstacle to an understanding by the public was that the chemist spoke a jargon of his own. The Manchester press, at all events, was doing a great deal to remedy this by publishing regularly illuminating articles on chemical subjects in language which, if it was not understood by the man in the street, was understandable by the man in the suburbs.

Annual Meeting of the British Association of Chemists

Renewed Demand for Registration

THE President (Mr. C. S. Garland) presided over the ninth annual general meeting of the British Association of Chemists at the Midland Adelphi Hotel, Liverpool, on Saturday.

Annual Report

In the annual report it was stated that during the year the whole question of registration and reorganisation of the profession had been under consideration by a special Committee of the Institute of Chemistry. As the personnel of this Committee created every confidence that the views for which the Association stood would receive full representation, it would have been discourteous for the Association to have taken any active steps other than to assist in exploration of the field. The Committee had recently reported, but its findings had yet to receive criticism or approval from the local sections of the Institute. The Council trusted that in the near future, active steps in the direction of registration would be taken in co-operation with the Institute of Chemistry. The Association participated in the Congress of Chemists organised by the Society of Chemical Industry, and, more than any event in the annals of the profession, the Congress had helped to unify the various Societies within the profession. The Society was associated with the Society of Chemical Industry in the discussion upon Chemistry House, and although, as was expected, no definite conclusion was or could have been arrived at in connection with this scheme for unification, the door had been opened for further discussion.

The Association made a strong protest in connection with the proposed exclusion of professional organisations from the benefit scheme organised by the Engineering, Shipbuilding and Allied Employers' Federation, and warned its members against the scheme. A letter of protest was published in *The Times*, and with the Electrical Power Engineers' Association, the Society of Technical Engineers, and the National Union of Scientific Workers, the British Association of Chemists addressed a joint letter of protest to the Federation. Although the Federation would not agree to the removal of the offending clause, no attempt at victimisation was made, which, there was good reason to believe, would have been the case but for this timely action.

Mr. H. S. Foster asked for information respecting the conversion of the adverse balance of £70 to a favourable balance of £90. He noticed that £90 appeared for propaganda, an item that did not appear the previous year, and he would like to know what general administrative expenses covered.

Mr. W. H. Woodcock, the Treasurer, said that expenses were down but subscriptions were up. With regard to the unemployment fund, the benefits during the last three months of the year were down, but, unfortunately, they had risen to an enormous extent during the last month or so, but the increase due to subscriptions and arrears was upwards of £200.

Mr. S. Reginald Price (Chairman of the Association) remarked that the Association was in a stronger position than it was last year.

Mr. Bennett asked what was the full membership of the Association. There were 36 resignations, and he asked what were the reasons behind these resignations.

Mr. S. Reginald Price said the total membership was about 1,030. The resignations were always very carefully reviewed and considered. The bulk of the resignations this year had been from two causes, the chief being members leaving the profession, which was a matter that wanted serious consideration, while the other chief causes were financial reasons.

New Officers

The following are the officers for the coming year: President: Professor Gilbert T. Morgan, F.R.S., Director of the National Chemical Laboratories; vice-presidents: Messrs. William E. Kay, F. Scholefield, M.Sc., F.I.C., Professor I. M. Heilbron, D.Sc., Ph.D., F.I.C., and G. S. Garland, A.R.C.S., B.Sc., F.I.C., M.I.Chem.E.; hon. registrar: Mr. E. H. Rod, D.Sc.; hon. treasurer: Mr. W. H. Woodcock; hon. general secretary: Mr. H. T. F. Rhodes, M.I.E.I. The Chairman remarked that Professor Morgan was one of the greatest academic chemists

in this country. He thought the Association was very fortunate and was greatly honoured by Professor Morgan accepting the nomination.

Mr. S. Reginald Price, in proposing a vote of thanks to the retiring officers, said they had been extremely fortunate in having Mr. Garland for their President during the year, and no one could have put more whole-hearted service into the affairs of the Association. He had been a tower of strength to the Association, and he had been largely helpful and instrumental in putting the Association on a different footing.

Chairman's Address

The Chairman said he was glad to report that the year had been one of real sound progress. Their membership had increased not only in members but in solidity, and the Association was making its weight felt in the chemical councils of the country. They were a trade union, but they would not have anything to do with the Trade Union Congress, whose aims were political. He thought the affairs of this country during the past 12 months had shown how wise their decision was. They had definitely disavowed the strike weapon as a means of gaining their ends. There were two matters he felt it his duty to mention: The first was registration. It was a matter of history that when the Association was formed, its primary object was to secure that there was a register of all chemists. It was a matter of great surprise to the Council to see a recent report that the matter of registration was one that did not concern the British Association. He thought it was to be regretted that this statement should have come from the Institute, particularly at a time when in Greece there had recently been an edict which had put chemists in that country in the same position as medical men. The real difficulty about registration was that there must first be co-operation, and he was sorry to say that at the moment there was no real spirit of co-operation between chemical bodies. He thought that the position of chemistry in this country had been greatly improved. Industry was coming more and more to depend upon the chemist for its very existence.

Coal and Oil

One of our troubles was that the world could not use all the coal that the world could produce. On the other hand, a committee, presided over by Mr. Hoover, had stated that the oil wells of America would run dry in six years. That was probably an unduly pessimistic view, but it was, at any rate, the fact that the world supply of oil was not increasing, whereas the demand was increasing by leaps and bounds. They must look to chemical industry and the chemists to supplement the world's supply of oil by making scientific use of coal. This work lay in two main directions, in both of which the initiative, he regretted to say, had come from Germany. The Bergius process for the hydrogenation of coal, although not yet highly developed, would ultimately replace to a large extent the heavier oils required for the mercantile marine and the heavy oil engines generally. By the Badische process, synthetic alcohols were being produced from water-gas at about sevenpence a gallon, and this method would certainly replace the light petroleum and petrol for water vehicles and aeroplanes. Both these operations were very delicate, and their development would give far greater importance to the work of the chemist and the chemical engineer.

Demand for Registration

At the conclusion of the Chairman's address, the following resolution was unanimously adopted:

"That the Association reaffirms its intention to press for the preparation of a register of all chemists with a view to confining the conduct of essential chemical operations to qualified men and that they instruct the Council to appoint a special Committee to reconsider what practical steps should be taken and to issue a statement commenting upon the present situation."

The auditors were reappointed and amendments to the rules were also adopted.

Speeches at the Annual Dinner

At the annual dinner in the evening Mr. C. S. Garland, the retiring president, in proposing "Our Guests," said the proposed amalgamation of four of the greatest firms in the British chemical industry was an event of very great importance to the chemists of this country. Sir Max Muspratt must be proud of the fact that his own firm, the oldest of the four affected, had not been bred on monopolies or protected by special circumstances, but had come to success and fruition over a long period in face of the fiercest competition with the whole world. As to the results of the amalgamation, one saw a possibility that the pooling of research staffs might mean that considerably fewer chemists would be required. From what he knew of these businesses, however, he was confident that that was not going to be the policy, but that, on the contrary, a great many more chemists would be needed. By throwing into the common pool the energy they had previously used in competing with one another they would be able to do a great work for the chemical industry. It was not too much to hope that this great combination, which he believed would be for the good of the British chemical industry and of industry generally, would result in opportunities for research which would enable British chemists to discover processes of equal importance to those which had recently originated in Germany for the scientific utilisation of coal—processes which might mark a turning point in the industrial history of the world.

Sir Max Muspratt

Sir Max Muspratt, in responding, said that trade unionists as such had his greatest respect, friendship, and co-operation, and he was on the most intimate terms with them. "Sometimes," he continued, "I meet them in other capacities—say, in the City Council, where they shed their trade unionism and become wild politicians such as they believe exist in Russia. (Laughter.) Even then they do not embarrass me, and whatever may seem to happen from accounts in the Press, the back-chat that we have behind the scenes is carried on with the greatest friendliness, even when they have been denouncing me as a 'bloated capitalist.'"

Referring to the proposed fusion of interests in the chemical industry, Sir Max said Mr. Garland was right in spirit, but not literally right, when he said that the United Alkali Co. was the oldest of the four concerns; actually it was junior to Brunner, Mond and Co., which was established in 1872, whereas the United Alkali Co. was not formed until 1890. The component parts, which were united in 1890, had, however, their origin in the Tennants of the eighteenth century and in James Muspratt (the speaker's grandfather) in 1823.

Referring to the excellent relations between employers and employed in the chemical industry, Sir Max said it was one of the great traditions of the industry that they were not out simply to make money, but to give service to the world. The industry could point with pride to what happened during the general strike. The T.U.C. knew that the chemical industry was one of the key industries of the country, and, with their cleverness but want of wisdom, they called out the whole of the chemical workers. Of about 250,000 workers in the industry (including glass, soap, and other allied trades) only about 5,000 responded. That was striking proof that in the chemical industry they knew something about human, as well as scientific, problems. He could not believe that the same feeling would not continue when the great merger took effect, or that they would not, as the "I.C.I.," attach the same importance to the human element as they had hitherto done as individual firms.

Possibilities of the Combine

"As to the possibilities," continued Sir Max, "I think a vast field of vision is thrown open before us all. The chemical industry is not only a great key industry; it is one of those industries that may alter the whole face of the earth to this extent. That in these great centres of population, instead of having to draw upon all parts of the world for many of the essentials of life, we may become so expert and so developed that we shall be less and less dependent upon far-away countries, and be able synthetically to supply almost every need of our population. Not only will that be true of many of the essentials of life, but it will extend to the minor luxuries and even to the larger luxuries. To attempt to attain to a field

like that it is necessary to have a great combination of all the interests. I believe that with all the intellectual resources at our disposal in this country, with all the possibilities of drawing upon the scientific experience of the world, and with the great British Empire dependent upon us in many ways, every man engaged in the chemical industry, in whatever capacity, if he has confidence in himself and his ability and in his power to make good, can look forward to a vast field of profitable service in the future."

Professor E. C. C. Baly, who also acknowledged the toast, said that even if the combine meant that temporarily fewer chemists might be employed, he was certain that any policy that was directed by leaders of industry of the calibre of Sir Alfred Mond, Sir Max Muspratt, and those associated with them was bound to react to the progress and benefit of the country as a whole. Their future as chemists depended upon that progress.

Professor I. M. Heilbron, in proposing "The British Association of Chemists," said that one of their great aims was to secure the registration of chemists. They wanted to see chemistry recognised in this country as a great profession. In the British universities there was research work in chemistry surpassing that of any German or other continental university, but they needed greater unification as between the academic workers and those engaged in the industry.

Mr. S. Reginald Price, chairman of the council, responded. The toast, "Brother Associations," was proposed by Mr. C. A. Wylie and acknowledged by Professor W. H. Roberts (Society of Chemical Industry) and Mr. Alfred Smeatham (Institute of Chemistry).

It was announced that Sir Max Muspratt had joined the Association and would become a vice-president.

Tate and Lyle's Factory

Reasons for Closing Down

TATE AND LYLE, LTD., have issued an announcement with regard to the closing of their sugar-refining factory at Plaistow Wharf, Victoria Docks, concerning which a statement was made by Sir Leonard Lyle last week. The reasons given for the stoppage were the dumping of foreign sugar in this country and the subsidising of home-grown beet sugar. The firm state that the impression has apparently been widely caused that the stoppage of the factory is permanent. They are confident, however, that "it is only temporary, while the present glut of home-grown beet and Continental dumped sugars prevails." As to the employees, a number are being retained, working on specialities.

"Statements have been made," they say, "that the 150,000 tons of home-grown sugar is a negligible quantity, since the total consumption for the year is approximately 1,700,000 tons. We are, however, not dealing with the question of yearly consumption. We do not suggest that our factory is stopped for a year. The whole point is that the consumption of sugar in this country is 140,000 tons per month. Home-grown sugar must be marketed in, say, three months, which means that 50,000 tons per month is available. This is more than one-third of the whole consumption per month, and it is, therefore, absurd to say that it is a negligible quantity. Foreign refined sugar came in at the rate of 70,000 tons per month for the last nine months, and when it is added that there is at the moment a surplus stock of continental dumped sugar in London alone amounting to 100,000 tons, the reason for the stoppage must be apparent."

Manufacturing Chemist's Bankruptcy

THE public examination of John Haddock, 79, late 77, Whitehall Road, West Bromwich, manufacturing chemist, was held on Friday, October 29, at the Law Courts, West Bromwich. Gross liabilities were £1,813 and there was a deficiency of £1,425. Debtor stated that he purchased his father's business in Lodge Road, Winson Green, about 1899, and subsequently commenced in West Bromwich. In 1919 he sold that business for £400. Three years later he started business as a manufacturing chemist at Whitehall Road. The business was not successful, and in 1923 he became aware of his position. He had had recourse to moneylenders. He admitted that he had kept no cash book or ledger and no books at all since June, 1923, as the turnover was so small. The examination was closed.

Dr. Armstrong's Hurter Lecture

Research and Enterprise in Chemical Industry

THE Liverpool Section of the Society of Chemical Industry held the first meeting of the session on Friday, October 29, in the chemistry lecture theatre of Liverpool University, when Dr. E. F. Armstrong (managing director of the British Dyestuffs Corporation, Ltd.) delivered the Hurter Memorial Lecture on "Research and Enterprise in Chemical Industry; New Routes to Old Chemicals." Mr. W. H. Roberts (chairman) presided.

Dr. Armstrong said that in chemical industry it would be true to say that progress was most marked, not so much in the discovery of entirely new products as in the finding of new routes to old substances whereby their manufacture was cheapened, and in certain cases so drastically altered that tons became available where only ounces or pounds were used previously. Virtually new substances thus were available in quantity for the arts and industries and served for developments of a surprising character.

Nitrocellulose Lacquers

The new nitrocellulose lacquers about to be so widely used as a finish for motor-car bodies might be taken as an illustration. These were likely to compete very actively with ordinary paints in the future both for internal and external decoration and preservation. We might well be on the threshold of a revolution in methods for the protection of iron and steel against corrosion, a problem which, if it could be solved economically, would save the world countless millions of pounds. The lacquer depended upon three factors: (a) the provision of the right type of nitrocellulose—a task for the chemists of the explosive industry; (b) the provision in unlimited quantity of suitable organic solvents—a task for the industrial organic chemist; and (c) the selection of the right composition for the lacquer—a problem for the chemists and practical men of this industry.

Above all, the lacquer must be sufficiently low priced to encourage its wide application and enable it to compete with paint. The chief factor in its cost was that of the organic solvent for nitrocellulose. Substances hitherto mainly of scientific interest and made in small quantities had to be manufactured in bulk at astonishingly low prices, with the certain knowledge, moreover, that these prices had to be substantially reduced before the really universal application of the product could take place.

Cheap Raw Materials Required

At once there began a hunt for new, cheap basic raw materials and new processes whereby the desired substances could be obtained. The substances in question were primarily ethyl and butyl alcohols, and acetic acid; to a less extent, certain other alcohols and acids. Ethyl alcohol was always obtained by fermentation; efforts to synthesise it from carbon products had not as yet been successful, including, it was believed, the attempt to prepare it by the reduction of aldehyde made from carbide. Methyl alcohol, the next most important alcohol in commerce, was one of the products of the wood distillation industry. Its price had been subject to wide market fluctuations, according to the laws of supply and demand, and the general state of the wood distillation industry. As was well known, the chemist had accomplished recently the synthesis of methyl alcohol from carbon monoxide and hydrogen by passing the mixed gases under great pressure over a suitable catalyst at a high speed. In consequence, unlimited quantities of methyl alcohol were available, derived from coal or coke at a cost which was probably less than 20 per cent. of what it used to be.

Butyl alcohol was for many years only a product of the laboratory until it was produced in quantity as an unwanted by-product in the manufacture of acetone by fermentation. Uses were sought for the butyl alcohol which accumulated in this way; finally, it was found that butyl acetate formed a nearly ideal solvent for nitrocellulose. The fermentation process was restarted on an industrial scale, this time with butyl alcohol as its aim, the proportion of acetone being restricted as much as possible. To-day, thousands of tons per annum were being manufactured from grain or rice, and sold at a price which, though high, was well within commercial practicability. But scarcely was the new fermentation method

established before it was menaced. The pressure process for methyl alcohol, when suitably modified in a manner which had not yet been disclosed, could be made to yield butyl alcohol just as satisfactory as the fermentation product for use as a nitrocellulose solvent.

Other substances, some of which were once regarded as chemical curiosities, but which were of great industrial value to-day, were butyl, amyl, and propyl alcohols and acetic and lactic acids. These could now be produced cheaply and synthetically on a large scale from coal or petroleum or from calcium carbide, which in turn could be produced at a very low cost where water power was available, as in Canada. In the case of acetic acid, largely used in the manufacture of artificial silk, the chemist had produced a very pure satisfactory synthetic article instead of preparing it by the more costly old method. These discoveries had been achieved by steady team work in which every branch of trained industrialist had participated. It was by such team work that progress would be made in the future.

Drug and Chemical Workers' Carnival

ON Friday, October 29, close upon 1,000 members of the National Union and their friends attended a carnival at the People's Palace, Mile End, London. Owing to the excellent arrangements made by the Committee under the direction of Mr. F. Martin and the two M.C.'s, Messrs. Hobson and Clarke, not a single hitch occurred in handling this huge gathering. Mr. Sid Davis's band supplied the music. The fancy dress parade was up to a high standard and the judging committee had no light task in allotting the prizes, which were given by almost every Metropolitan branch.

Just before the prizes were distributed by Mrs. T. W. Hobson, wife of the Union's vice-president, Mr. A. J. Gillian (general secretary) addressed a few seasonable words to the gathering. The prizes were allotted as follows: Gentlemen: 1st, "Miss 1826"; 2nd, "The Zulu"; 3rd, "The Man from Texas." Ladies: 1st, "A Chip off the Old Block"; 2nd, "Guy Fawkes looking for Jix"; 3rd, "Stumpy Umbrella"; 4th, "The Stop Watch." Children's: 1st, "The Herald News Boy"; 2nd and 3rd, "The Bride and Bridegroom"; 4th, "Scraps"; 5th, "In an Old World Garden"; 6th, "Nippy"; 7th, "One of Cobham's Fans." Besides the above valuable prizes many others were given for programme numbers and spot dances.

During the evening the gold watches in connection with the London and Home Counties Divisional Council competition were unsealed and the winning times declared as follows:—Gentlemen: 5 hrs. 21 mins. 38 secs.; ladies: 9 hrs. 24 mins. 4 secs. The Union, its members, the committee, and all the stewards under the control of Mr. P. Barham can be rightly proud of these annual events, which are among the largest trade union gatherings held in London. After four hours non-stop music and fun everyone went home happy though tired at 11.30 p.m.

Mr. G. Helps's Application Refused

THE Court of Appeal, consisting of the Master of the Rolls and Lord Justice Sargant, on Monday refused an application by Mr. George Helps, gas engineer, of Nuneaton, for an extension of time in which to appeal against the decision given in his recent action against the Oldham Corporation for royalties on his inventions for the manufacture and use of low-grade gas. That action was dismissed and judgment entered for the Corporation for £4,257 on a counterclaim by them in respect of plant erected to test Mr. Helps's inventions. Mr. Whitehead, K.C., for Mr. Helps, said the appeal had not been made in time because Mr. Helps's solicitor mistakenly thought that the Long Vacation did not count in the time given for appealing. The hearing of the action lasted 25 days, and it was fought throughout on the assumption that, whatever happened, it would be taken to the House of Lords. Great expense had been incurred on that basis. There were similar claims against nineteen other Corporations and gas undertakings, and it would be a great hardship if Mr. Helps could not appeal. The Master of the Rolls said there was no sufficient excuse for the failure to comply with the rules, and Lord Justice Sargant concurred.

Imperial Chemical Industries, Ltd.

Further Combine Details

A NEW official statement on the British chemical combine appeared this week, which was as follows: The boards of directors of Brunner, Mond and Co., Ltd., Nobel Industries, Ltd., The United Alkali Co., Ltd., and British Dyestuffs Corporation, Ltd., having arrived, as already announced, at a provisional agreement for the fusion of interests of their companies, are now in a position to give this preliminary public intimation of the basis for the proposed fusion, pending the despatch of formal offers to be made to their respective shareholders, a new limited liability company with the title and directors stated below will be formed as early as possible. So far as the existing shareholders in the merging companies consent to the scheme their shares in those companies will be taken over by the new company, which will issue in exchange its own fully paid shares on the terms set out below.

The proposed name of the company will be Imperial Chemical Industries, Ltd. On the assumption that all the shareholders of the merging companies consent to exchange their holdings of shares the issued capital of the new company on the basis of exchange will be £56,802,996 divided as follows: £16,219,306 in 7 per cent. cumulative preference shares of £1 each (preferential both as to capital and dividends); £31,095,555 in ordinary shares of £1 each; and £9,483,135 in deferred shares of 10s. each.

The Directorate

The directors of the new company will be:—Sir Alfred Mond, M.P. (chairman); Sir Harry McGowan (president and deputy-chairman); Lord Ashfield; Sir John Brunner; Dr. G. C. Clayton, M.P.; Mr. H. J. Mitchell; Mr. Henry Mond; Sir Max Muspratt; Lt.-Col. G. P. Pollitt; the Marquess of Reading; Sir Josiah Stamp; Mr. B. E. Todhunter.

The profits of the company to be distributed will be applied in the following order:—1. In paying a cumulative dividend at the rate of 7 per cent. per annum upon the preference shares; 2. In paying a dividend at the rate of 7 per cent. per annum upon the ordinary shares; 3. In distributing the balance between the holders of the ordinary and deferred shares in the ratio of two-thirds to the ordinary shareholders and one-third to the deferred shareholders. On the basis of the earnings of the four merging companies and their subsidiaries for their respective last completed financial years, the chairmen of the four merging companies are satisfied that, after making due provision for reserves, the future earnings of the new company should exceed £4,000,000, a sum sufficient to cover payment of the preference dividend more than three and a half times, and to leave available adequate funds for further distribution. Shareholders in the merging companies will retain all their existing dividend rights up to December 31, 1926, after which date the shares of the new company will rank for dividend.

The Terms of Exchange

The terms under which the shares of the merging companies will be exchanged for the shares of Imperial Chemical Industries Ltd., are as follows:—

BRUNNER, MOND AND CO., LTD.: For each four existing $7\frac{1}{2}$ per cent. cumulative preference shares of £1 each there will be exchanged five 7 per cent. cumulative preference shares of £1 each in the new company; for each two existing ordinary shares of £1 each there will be exchanged three ordinary shares of £1 each and two deferred shares of 10s. each in the new company.

NOBEL INDUSTRIES, LTD.: For each existing 6 per cent. cumulative preference share of £1 there will be exchanged one 7 per cent. cumulative preference share of £1 in the new company; for each two existing ordinary shares of £1 each there will be exchanged three ordinary shares of £1 each and two deferred shares of 10s. each in the new company.

UNITED ALKALI CO., LTD.: For each existing 7 per cent. cumulative preference share of £1 there will be exchanged one 7 per cent. cumulative preference share of £1 in the new company; for each two existing ordinary shares of £1 each there will be exchanged three ordinary shares of £1 each in the new company; and for each three existing ordinary shares of

£1 each there will be exchanged one deferred share of 10s. in the new company.

BRITISH DYESTUFFS CORPORATION, LTD.: For each forty existing ordinary shares of £1 each there will be exchanged sixteen 7 per cent. cumulative preference shares of £1 each, sixteen ordinary shares of £1 each and one deferred share of 10s. in the new company.

A formal offer containing full particulars of the terms of the proposed fusion will be issued as early as possible to each shareholder in the merging companies.

Sir Max Muspratt on the Combine

As regards the effect of the chemical combine on the individuality of the United Alkali Co. and its specific interests and development, Sir Max Muspratt declared recently that there was no immediate intention to destroy the identity of the constituent companies. For example, the directors of the United Alkali Co. would continue to operate the industry with which they had been so long and so intimately acquainted. The board of the new company would form a supervising and connecting link in finance and policy, in exchange of knowledge and information, and would enable the British chemical industry to deal with similar large groups in other countries on terms of equality, enable them to speak with a united voice, and instead of leaving it to individual units to make arrangements for the world's competitive conditions as best they could, would give them all the authority and prestige and advantage of a great combination. They would, of course, go forward developing their works, and he had a confident hope that some of the new developments would take place in Widnes. That was his personal hope.

Reorganisation Already Commencing

An indication of the possibility that (subject to the approval of the shareholders in the separate companies of the formation of the combine) the necessary reorganisation is already being planned may be found in the fact that Sir John Brunner, who was invited by the Northwich Division Liberal Association to contest the seat at the next election, replied on Saturday to the annual meeting of the Divisional Council that the great changes in the chemical industry and the removal of the control of Brunner, Mond and Co., Ltd., to London necessitated his own removal from Cheshire, and made it impossible for him to stand in the county.

Professor Dixon on Laughing Gas

Recent Investigations

A PAPER on the "Burning of gases in nitrous oxide," jointly prepared by Professor H. B. Dixon, F.R.S., and Mr. W. F. Higgins, was read by Professor Dixon at a meeting of the Manchester Literary and Philosophical Society on Tuesday. Professor W. L. Bragg presided.

Professor Dixon, in the course of his address, drew attention to the comparative neglect of the subject since Sir Humphry Davy early in the nineteenth century began his investigations into the anæsthetic properties of "laughing gas," the popular term given to nitrous oxide, and mentioned that his own inquiries had been prompted by the desire of dentists and surgeons to know more of the temperature at which an explosive mixture could be formed by bringing it into contact with other gases, such as ethylene, used as anæsthetics. A small jet of hydrogen burning in air, Professor Dixon explained, was almost invisible and its light was inappreciable; but if nitrous oxide were substituted for the air the increase in the size and luminosity of the flame was remarkable. The jet of issuing gas was surrounded by a luminous, apricot-coloured zone, and outside this was a thick sheath of a greenish-grey colour. The luminous zone appeared to give a continuous spectrum, and this was confirmed by a spectrogram taken with a 24-hours' exposure.

Hydrocarbon gases—methane, ethylene, propylene, acetylene—when burning with nitrous oxide showed an intensely bright centre surrounded by a luminous apricot zone, and round all a wide-stretching green-grey envelope. The propylene and acetylene flames deposited a sheath of carbon round their luminous cores. All of the gases that were tested in the concentric tube apparatus had ignition points in nitrous oxide lower than those in oxygen or air. They all exhibited a lowering of ignition above and below the crucial pressure, just as in oxygen or in air.

Artificial Colours in Foodstuffs

Standard Methods of Analysis

DR. HERBERT DRAKE-LAW read a paper on this subject at the meeting of the London Section of the Society of Chemical Industry on Monday, November 1, dealing with artificial colours used in foodstuffs. The main object of the paper was to bring into prominence the desirability for devising standard methods of analysing foodstuffs in regard to colouring matter. The majority of works chemists, said the author, have not time critically to review all the tests they are called upon to employ, and it was essential that they should have a reliable system of analysis at hand for the purpose. Therefore he pleaded for the publication of expert knowledge on the subject in order to avoid the disputes which frequently arose as the outcome of the various methods now employed.

Having regard to the tendency in various countries throughout the world to restrict the use of harmful products entering into the composition of foodstuffs, and the fact that many countries had recently revised their food laws regarding preservatives, the works chemists in this country were frequently asked for opinions as to the suitability of various foodstuffs for export, and to be able to give these opinions they must have a knowledge of the methods of analysis used by foreign Governments. It was highly desirable, however, not only that these methods should be known, but better still that a uniform method of analysis should be recognised throughout the world. He suggested, therefore, that one of the learned societies should take up this matter with a view to international standardisation of methods of analysis employed in connection with the raw materials used in foodstuffs.

Dr. Drake-Law referred to the position in this country in regard to colouring of foodstuffs as a result of the sittings of the Departmental Committee on Food, and also to the list of colouring matters permitted by the United States which, he said, has been largely adopted throughout the world. He also reviewed generally the various types of colouring matter, indicating their particular properties, namely, those which are toxic, those which are strongly antiseptic, and those which are purely irritant, the list of which is given in the final report of the Departmental Committee on Food. Arising out of his own experience also, Dr. Drake-Law described various tests which he has found suitable in regard to the main requirements of food-colouring matter, namely, stability to light, heat, acids, alkalis, sulphur dioxide, metals and other materials with which the foodstuff may come into contact.

A Standard Test for Dyes

Dr. LEVINSTEIN, speaking on the question of arsenic and lead in food, said that the only really satisfactory way to remove arsenic and lead was to prevent them from getting in.

Mr. F. H. CARR strongly urged that there should be some standard test for the purity and nature of the dyes used in colouring food.

Mr. W. J. U. WOOLCOCK remarked that the legislation in America with regard to dyestuffs and preservatives in food was not likely to hamper us in this country very seriously, because the list was really a very good guide for those handling export trade. Moreover, the colours in the American list were not colours that any manufacturer would object to.

Mr. THOMAS, referring to the troubles of the manufacturer of dyestuffs for food purposes, commented on the very wide differences in results which were frequently given by equally reputable analysts upon samples of the same material and urged that some standard method of analysis should be put forward and made official.

Dr. COLGATE said that although a number of British Colonies and other countries had accepted the American list they had subsequently added to it. One of the troubles was that the colour manufacturer did not know enough about the requirements of the food industry, and at the moment was not sending out his colours with that degree of consistency in composition that was required.

Mr. HINKS said he did not think there is any need for a standard test for lead or arsenic because such tests could not be empirical. They were quite definite and a standard test was not likely to be any better than any method now used by analysts.

Dr. ERHARDT doubted whether standard methods of analysis would have the desired effect, especially when dealing with the export market.

Mr. THORNLEY suggested that sufficient emphasis had not been placed upon the necessity for testing colours under conditions of actual use, because it had frequently been shown that a colour giving certain properties when used for purposes other than food, showed quite different properties when used for colouring food. As regards the identification of some of the colours used in foodstuffs, he had given this up as a bad job.

Mr. WOOLCOCK referred to a statement in the Alkali Inspector's Report in which the biggest cause of dermatitis in this country was attributed to alkali. The fact was, of course, that there had been no case of dermatitis in alkali works for a considerable number of years, but at the same time it was possible that a great deal of dermatitis in dye works was not due so much to the alkali as to something that had happened when the alkali was used in the dyes.

Dr. DRAKE-LAW said he had never known of a case of dermatitis due to alkali pure and simple, but in conjunction with a colour, where a basic production had been liberated, then dermatitis might occur.

Industry and Research

Sir J. J. Thomson Opens Welsh Science Buildings

AT a great gathering in the Pritchard Jones Hall of the University College of North Wales, at Bangor, the buildings of which occupy so dominant a position in the city, the new North Wales Heroes' Memorial Science Laboratories were on Tuesday declared open by Sir Joseph J. Thomson, the Master of Trinity College, Cambridge, and Past-President of the Royal Society. Earlier in the day Sir Joseph made a tour of the laboratories, which were also open to the inspection of other guests. In his speech he said that it was the duty of universities to enlarge the bounds of knowledge as well as to instruct the community in the knowledge already won. The discoveries made in the universities by people working simply to increase human knowledge without any idea whatever of any industrial application were the very discoveries which created new industries and revolutionised the old. The Government had lately encouraged research. They had organised and subsidised research in the various industries, they had organised a fuel research department and the food research department, on which large sums were spent; and this was all to the good, but it was not enough.

A seed of a plant became in the earth a factory weaving textures of the greatest delicacy, dyeing them with all colours, and doing it unerringly. In addition it lay out stores of material which are at present, at any rate, beyond the power of the chemist to produce. He believed the opium poppy produced more than twelve different kinds of alkaloids. It seemed that our looms and factories were inefficient in comparison. We had to go to flowers in a crannied wall to learn chemistry, philosophy, and religion. To find out the mechanism of this tiny seed they would have to develop methods of investigating the changes that went on almost molecule by molecule. Of late years methods had been devised which were continually diminishing the distance between them and the solution of the problems, and in the not too indefinite future they might hope to get to know something of the way in which those marvels were accomplished. That required the co-operation of many sciences, and it seemed to him that the building opened that afternoon, with so many laboratories, was admirably fitted to take part in this great work.

Report on C.W.S. Boiler Explosion

THE report has recently been issued of an inquiry into a boiler explosion which occurred on Monday, February 22, at the Co-operative Wholesale Society's Bone and Soap Works, South Pontefract, Yorkshire. The investigation was conducted by Mr. A. B. Bence-Jones and Mr. A. J. Maginnis. The report states that the immediate cause of the explosion was the thinness of the lower shell plate due to excessive corrosion. A contributory cause may have been the absence of a proper safety valve. It was found that the Co-operative Wholesale Society, Ltd., was to blame for the explosion, and an order was made for the Co-operative Wholesale Society, Ltd., of No. 1, Balloon Street, Manchester, to pay the sum of £25 towards the cost of the formal investigation.

From Week to Week

THE RESEARCH SPECIAL SUB-COMMITTEE of the Imperial Conference held a number of meetings during the past week.

THE ADDRESS of Mr. T. Hedley Barry, technical consulting chemist is 1, Gough Square, Fleet Street, London, E.C.4 (Central 4279), to which all correspondence may be addressed.

THE FACULTY of SCIENCE of the University of London has elected Professor L. N. G. Filon, M.A., D.Sc., F.R.S., of University College, as dean of the faculty for the period 1926-28.

THE AMERICAN PAINT AND VARNISH MANUFACTURERS' ASSOCIATION has been formed as a result of a combination of the National Varnish Manufacturers' Association and the Paint Manufacturers' Association.

SIR JOSIAH STAMP, director of Nobel Industries, Ltd., and president of the executive of the London Midland and Scottish Railway, was invested with the honorary degree of Sc.D. at Cambridge, on Friday, October 29.

UNIVERSITY COLLEGE, LEICESTER, and the Wigan and District Mining and Technical College have been added to the list of institutions recognised for the training of candidates for the examinations of the Institute of Chemistry.

THE CHEMICAL AND METALLURGICAL CORPORATION, LTD., has made a request to the Runcorn and District Water Board for a water supply for their proposed new works on the Mersey. The engineer has been instructed to report on the matter.

BUILDING RESEARCH TECHNICAL PAPER No. 4, just issued by the Department of Scientific and Industrial Research, deals with "The Determination of Free Lime in Hydraulic Cement." The paper was written by Mr. F. L. Brady, M.Sc., A.I.C., and Mr. F. J. McConnell.

UNDER THE TRADE FACILITIES ACT, guarantees have been given by the Treasury to the following, among others:—Anglo-Scottish Beet Sugar Corporation, Ltd., £240,000; Orchard Sugar Co., Ltd., £100,000; Australian Pulp and Paper Co., Ltd., £110,000; Oxford Cement Co., Ltd., £100,000.

APPLICATIONS ARE INVITED for the post of chemist for tobacco work in the Chemical Department of the Egyptian Government, Cairo, Egypt. Candidates should have knowledge of the methods employed by Governments for the assessment of tobacco duties. Maximum salary, £900. The Chief Inspecting Engineer, Egyptian Government, 41, Tothill Street, London, S.W.1. November 12.

PUBLIC LECTURES on "Chemical Warfare" and on "Air Warfare" will be delivered at the Imperial College of Science, South Kensington, at 5.30 p.m., on November 25 and December 9 respectively. The lecturers will be Brigadier-General H. Hartley and Air Vice-Marshal Brooke-Popham. These lectures, which were postponed from last May on account of the general strike, complete the "Higher Studies in War" series arranged for last session. The public will be admitted without ticket.

DR. W. H. GIBSON, of Queen's University, Belfast, in an address to the Belfast Section of the Institute of Chemistry, on "Some Difficulties in the Application of Science to Industry," dealt with the difficulties which confront a young chemist on leaving the university and entering upon an industrial career. He spoke of the need for greater understanding between the scientist and the business man, and suggested that it would be desirable to modify the training of a young chemist so that he might be better able to appreciate the practical problems of industry.

ROBERT J. ANDERSON, INC., is the designation of a new American company formed to operate as a commercial testing laboratory, specialising in metals and alloys. The new laboratory, which is situated at 2416-38, Beekman Street, Cincinnati, Ohio, is fully equipped for chemical analysis, mechanical testing, metallography, heat treatment, and radiography. The laboratory is staffed with a corps of qualified chemists and metallurgists directed by Dr. Robert J. Anderson, metallurgical engineer. Officers of the company are Dr. Robert J. Anderson, president, H. J. Hater, treasurer, and R. T. Mesker, secretary. These, with Messrs. J. and E. F. Eckler, form the incorporators and directors. Further details will be announced later.

RECENT WILLS INCLUDE: Mr. Frederick George Lomax, of Great Oaks, Goring Heath, Oxon., and Queen's Gate, S.W., chairman of the Chilean Nitrate Commission, the Santa Catalina Nitrate Co., Ltd., and the New Tamarugal Nitrate Co., Ltd., and a director of the Alianza Company, Ltd., and the Angela Nitrate Co., who died in August, aged 69, £222,083 (net personalty £189,185).—Mr. Harry Le Marchant, Kenley, Surrey, for many years connected with Martin Earle and Co., now absorbed in the British Portland Cement Manufacturers, £20,349.—Sir Howard Spicer, K.B.E., Elm Tree Road, St. John's Wood, chairman and joint managing director of Spicers, Ltd., paper makers and wholesale stationers, and a director of United Newspapers, Ltd., £28,810.

LEVER BROTHERS' FISH OIL WORKS at Fleetwood was burned out completely last week, damage to the extent of £55,000 being done.

MR. G. W. ELLIS, of St. Mary's Hospital, has been awarded the Doctor of Science degree of the University of London, in chemistry.

SIR ALFRED MOND will be the chief speaker at the annual dinner of Halifax Chamber of Commerce on the first Friday in February, 1927.

THE GLASGOW AND WEST OF SCOTLAND SECTION of the Institute of Chemistry held its annual general meeting this week. Professor Henderson gave an address on "What are the Advantages of Institute Membership?"

MR. ARTHUR D. MERRIMAN, M.A., B.Sc., senior master in chemistry at King's Norton Secondary School and lecturer in chemistry at the Smethwick Technical School, has been appointed head master of the Wallsend Secondary School and Technical Institute, at a commencing salary of £600 a year.

IN A PAPER on the management of chemical works at the Newcastle Section of the Society of Chemical Industry, Mr. Alfred Rudge, the new chairman of the section, expressed the view that the technical manager of a chemical works should be either a chemist with an engineering sense or an engineer with some knowledge of chemistry.

THE YORKSHIRE SECTION of the Society of Chemical Industry held its annual general meeting at Leeds last week. The principal business of the meeting was to hear a paper on the problem of dirt in rag flocks by Mr. W. Mackey. Mr. B. A. Burrell was re-elected chairman; Mr. H. J. Hodsman, vice-chairman; Mr. N. M. Comber, hon. secretary; and Mr. J. H. Garner, Mr. A. Parker, Mr. G. F. Pickering, and Mr. W. H. Wilkinson, committee.

Obituary

MR. V. E. DODGE, of the Dodge and Olcott Co., of New York, on September 27, aged 85.

MR. JOHN SIBLEY, director of Paine and Co., Ltd., St. Neots, Hunts, at his residence, St. Neots, on October 29.

MR. ROBERT LENNON, a director of the Lennox Foundry Co., Ltd., of New Cross, London, aged 66, on Monday, after a long illness.

MR. T. B. STEWART, manager of Turnbull, Ltd., dyers and cleaners, aged 49. Mr. Stewart was a director of the British Cotton and Wool Dyers' Association, Ltd.

MR. WILLIAM SPILLER, at Lindfield Gardens, Hampstead, on October 12, aged 90 years. He was a student at the Royal College of Chemistry in 1851 and 1852, and was chemist with Simpson Maule and Nicholson at Locksfields, Wandsworth, before he was transferred to their aniline dye works at Hackney Wick. In 1868 the factory was taken over by Brooke, Simpson and Spiller, in which he was a partner, and the business was subsequently incorporated with that of Perkin and Sons, of Greenford Green. Mr. Spiller introduced "Spiller's purple," and was credited with several improvements in the manufacture of coal-tar products. He was elected a Fellow of the Institute of Chemistry in 1878, and served as a member of council from 1893 to 1896.

MR. LEONARD CARPENTER, B.Sc., A.I.C., at Buxton Cottage Hospital, after an operation, on October 1, in his thirty-third year. He was the youngest son of the late William Carpenter, J.P., of Southgate, and was educated at University College, London, graduating as B.Sc. with Honours in Chemistry in 1914. He served in the Army from November of that year until August, 1916, and was then transferred as works and research chemist to Grays Chemical Works until April, 1918, when he was recalled to the colours until the end of the war. Early in 1920 he obtained an appointment as chemist and manager with the East Anglian Chemical Co. at Sutton Bridge, Lincolnshire, and in 1924 joined the Derbyshire Silica Firebrick Co. at Buxton, with whom he was engaged as chemical engineer at the time of his death. He had written a book on "Mechanical Mixing Machinery" and had published various articles in THE CHEMICAL AGE.

ARNOLD WILLIAM GREGORY died on August 25 in his forty-second year. He was educated at Derby Technical College, and after studying for a further year at the Royal College of Science graduated as B.Sc. with Honours in the University of London in 1906. In 1905-6 he was assistant chemist for nearly a year with the Frodingham Iron and Steel Co., and then for over two years head chemist with the Appleby Iron Co., Scunthorpe. From 1910 he was engaged in private practice as an analytical and consulting chemist and metallurgist in London. He published several papers in the Journal of the Chemical Society and the Chemical News on methods of analysis, and was the inventor of processes for the separation of iron from metallic salts, the production of pig iron from scrap, the recovery of tin from tin-plate and of improvements in the recovery of tin compounds. He was also engaged in connection with the manufacture of important substances for war purposes, and went to America in 1918 to demonstrate his processes there.

References to Current Literature

British

- AMINES.**—A modification of the Gabriel synthesis of amines. H. R. Ing and R. H. F. Manske. *Chem. Soc. Trans.*, September, 1926, pp. 2348-2351.
- ANALYSIS.**—Polarimetric determination of sucrose in sweetened condensed milk. P. Honegger. *Analyst*, October, 1926, pp. 496-503.
- CATALYSIS.**—Acid and salt effects in catalysed reactions. Part I. H. M. Dawson and J. S. Carter. *Chem. Soc. Trans.*, September, 1926, pp. 2282-2296.
- COLLOIDS.**—The influence of lyophilic colloids on the precipitation of insoluble salts. Gelatine and silver chromate. Parts I and II. T. R. Bolam and M. R. MacKenzie. *Trans. Faraday Soc.*, July, 1926, pp. 151-177.
- DYESTUFFS.**—Sulphur dyestuffs and their manufacture. J. H. Platt. *Ind. Chem.*, October, 1926, pp. 458-461. The action of chlorine on aniline. The formation of induline dyestuffs. Part I. D. G. Brown and W. M. Cumming. *J.S.C.I.*, October 22, 1926, pp. 355-360.
- Standardisation of methods of testing the fastness of dyes. A. Crummett. *J. Soc. Dyers and Col.*, October, 1926, pp. 301-304.
- OILS.**—Progress in refining during 1925. J. M. Sanders. *J. Inst. Petroleum Tech.*, August, 1926, pp. 374-385.
- ORGANO-METALLIC COMPOUNDS.**—Mercuration of some alkylphenols and alkylphenolaldehydes. T. A. Henry and T. M. Sharp. *Chem. Soc. Trans.*, September, 1926, pp. 2432-2440.
- 10-Chloro-5 : 10-dihydrophenarsazine and its derivatives. Part III. Homologues and amino-, chloro-, and cacodyl derivatives. H. Burton and C. S. Gibson. *Chem. Soc. Trans.*, September, 1926, pp. 2241-2247.
- REACTIONS.**—The equilibrium in the causticising process. L. F. Goodwin. *J.S.C.I.*, October 22, 1926, pp. 360-361.
- The effect of additions of sodium sulphide on the causticising process. L. F. Goodwin and I. L. Sills. *J.S.C.I.*, October 22, 1926, pp. 362-364.
- SOLUBILITY.**—The influence of nitrogen on the solubility of ferrous materials in hydrochloric acid. H. H. Gray. *J.S.C.I.*, October 22, 1926, pp. 365-366.
- SOLVENTS.**—Solvents and diluents for pyroxylin lacquers and enamels. H. S. Garlick. *Ind. Chem.*, October, 1926, pp. 437-440.
- STRUCTURE.**—The space formula of diphenyl. R. J. W. Le Fèvre and E. E. Turner. *Chem. Soc. Trans.*, September, 1926, pp. 2476-2484.

United States

- ABSORPTION.**—The absorption of gases in milk of lime. Part I. H. C. Weber and K. T. Nilsson. *J. Ind. Eng. Chem.*, October, 1926, pp. 1070-1075.
- ANALYSIS.**—A short method for the estimation of selenium in organic compounds. W. E. Bradt and R. E. Lyons. *J. Amer. Chem. Soc.*, October, 1926, pp. 2642-2646.
- Apparatus for the direct determination of carbon dioxide. J. E. Underwood. *J. Ind. Eng. Chem.*, October, 1926, pp. 1069-1070.
- CELLULOSE.**—The future trend of cellulose chemistry. G. J. Esselen. *J. Ind. Eng. Chem.*, October, 1926, pp. 1031-1034.
- DIAZO COMPOUNDS.**—The stability of diazo-benzene chloride solution. Part I. H. A. H. Pray. *J. Phys. Chem.*, October, 1926, pp. 1417-1426.
- FUEL.**—Future trends in automotive fuels. A. C. Fieldner and R. L. Brown. *J. Ind. Eng. Chem.*, October, 1926, pp. 1009-1014.
- The Thomas gas calorimeter. R. A. Ragatz and O. L. Kowalke. *J. Ind. Eng. Chem.*, October, 1926, pp. 1087-1090.
- HAFNIUM.**—An attempted separation of hafnium and zirconium by the ionic migration method. J. Kendall and W. West. *J. Amer. Chem. Soc.*, October, 1926, pp. 2619-2626.
- PHOTO-CHEMISTRY.**—The photo- and radio-chemical interaction of hydrogen and chlorine. F. Porter, D. C. Bardwell and S. C. Lind. *J. Amer. Chem. Soc.*, October, 1926, pp. 2603-2618.

- Studies in photo-chemical technique. P. W. Cunliffe, R. G. Franklin, R. E. W. Maddison and L. Reeve. *J. Phys. Chem.*, October, 1926, pp. 1427-1431.
- REACTIVITY.**—The effect of substituents in the formation and reactions of certain ethers. L. C. Raiford and J. C. Colbert. *J. Amer. Chem. Soc.*, October, 1926, pp. 2652-2662.
- The effect of structure of organic halides on their rate of reaction with inorganic halides. Part I. W. R. Kirner. *J. Amer. Chem. Soc.*, October, 1926, pp. 2745-2753.
- SUGARS.**—The occurrence of gentiobiose in the products of the commercial hydrolysis of corn starch. H. Berlin. *J. Amer. Chem. Soc.*, October, 1926, pp. 2627-2630.
- The mechanism of carbohydrate oxidation. Parts IV and V. W. L. Evans. *J. Amer. Chem. Soc.*, October, 1926, pp. 2665-2681.
- WASTE.**—Disposal of some organic trade wastes. E. Bartow. *J. Ind. Eng. Chem.*, October, 1926, pp. 1085-1086.

French

- ACIDS.**—Manufacture of sulphuric acid and ammonium sulphate from calcium sulphate. Part II. J. H. Frydlander. *Rev. Prod. Chim.*, October 15, 1926, pp. 649-654.
- The oxidation of pyruvic acid by metallic ions. Quantitative determination of the enol and keto forms. C. Fromageot. *Bull. Soc. Chim.*, September, 1926, pp. 1207-1222.
- ANALYSIS.**—Titration of iodine solutions by means of hydrazine sulphate. E. Cattelain. *Bull. Soc. Chim.*, September, 1926, pp. 1279-1280.
- COLLOIDS.**—Colloidal silicates and colloidal silica in agriculture. Part II. C. Granvigne. *Rev. gén. Colloides*, August, 1926, pp. 229-234.
- FOODSTUFFS.**—Note on bread-making. Part II. B. d'Arbouet. *Rev. gén. Colloides*, August, 1926, pp. 225-228.
- HYDROCARBONS.**—Some diethylenic hydrocarbons. Part II. R. Escourrou. *Bull. Soc. Chim.*, September, 1926, pp. 1249-1254.
- OXIDES.**—Study of some transformations observed during the calcination of the sesquioxides of iron, chromium and aluminium. L. Blanc. *Ann. Chim.*, September-October, 1926, pp. 182-243.
- PROTEINS.**—Biochemical transformations of protein materials. J. R. Carracido. *Bull. Soc. Chim.*, September, 1926, pp. 1189-1199.
- REACTIONS.**—Mechanism of the action of hydrazine on 1:4-diketones with the formation of derivatives of 1:2-diazine and amino-pyrrols. G. Korschun and C. Roll. *Bull. Soc. Chim.*, September, 1926, pp. 1223-1235.
- Study of reactions for the displacement of metals using a special method and apparatus. Part II. J. Barlot. *Ann. Chim.*, September-October, 1926, pp. 135-181.
- SULPHATES.**—Investigation of calcium sulphate. Part I. Action of water. L. Chassevent. *Ann. Chim.*, September-October, 1926, pp. 244-294.

German

- SUGARS.**—Developments in the chemistry of sugars during the last two years. J. Leibowitz. *Z. angew. Chem.*, September 30, 1926, pp. 1143-1148; October 14, 1926, pp. 1240-1248.
- The constitution of melezitose and turanose. Ber., September 15, 1926, pp. 1655-1664.
- The reactivity of the fourth hydroxyl group of glucose. H. H. Schlubach and H. Firgau. *Ber.*, September 15, 1926, pp. 2100-2102.
- SULPHOXYL COMPOUNDS.**—On the constitution of sulfoxyl compounds. A. Binz. *Ber.*, September 15, 1926, pp. 1695-1698.
- SULPHONATION.**—A method for the sulphonation of inorganic and organic substances. P. Baumgarten. *Ber.*, September 15, 1926, pp. 1976-1983.
- URANATES.**—The formation of normal uranates by heating UO_3 with metal oxides. G. Tammann and W. Rosenthal. *Z. anorg. u. allg. Chem.*, September 16, 1926, pp. 20-26.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

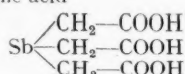
Abstracts of Complete Specifications

258,960. **DYESTUFFS, PROCESS OF PREPARING.** The British Alizarine Co., Ltd., Trafford Park, Manchester, and C. M. Barnard, 40, North Road, Clayton, Lancs. Application date, July 4, 1925.

Dyestuffs particularly suitable for dyeing cellulose esters are obtained by condensing citric acid with an amino-anthraquinone or amino-benzanthrone. In an example, 1:4-diamino-anthraquinone is heated with citric acid under a reflux condenser for 1 hour. The heating is then continued at 150° C. without the condenser until the product is soluble in sodium carbonate solution. The mixture is poured into hot water, boiled, cooled, filtered, and the precipitate dissolved in sodium carbonate or ammonia. The product dyes acetyl silk a magenta colour.

258,973. **COMPLEX ALKALI OR ALKALINE EARTH ANTIMONY COMPOUNDS, MANUFACTURE OF.** W. Carpmal, London. From Farbenfabriken vorm. F. Bayer and Co., Leverkusen, near Cologne. Application date, July 17, 1925.

These compounds are obtained by treating a neutral alkali or alkaline earth salt of a mercapto-carboxylic acid with an oxygen compound of trivalent antimony, or, alternatively, a mercapto-carboxylic acid is treated with an oxygen compound of trivalent antimony followed by neutralisation with an alkali or alkaline earth. In the latter case, if thioglycollic acid is used, the neutralisation must be effected after heating the compound and without isolating the acid. The products are alkali salts of the acid



Examples are given of the use of thioglycollic acid and antimony trioxide, and thiosalicilic acid and antimony hydroxide, the sodium and calcium compounds being obtained.

258,974. **CONCENTRATED AND FUMING SULPHURIC ACID, CATALYTIC PROCESS FOR PRODUCING.** S. G. S. Dicker, London. From K. Kudoh, Osaka, Japan. Application date, July 17, 1925.

In the process for producing sulphur trioxide by passing sulphur dioxide and oxygen over a catalyst, the sulphur trioxide has been absorbed and the sulphur dioxide then dissolved out by washing. The gas is then liberated and reintroduced into the process. Or alternatively, the gases containing oxygen and sulphur dioxide have been passed with fresh oxygen into a pyrites burner and the gases then passed over a catalyst. In this process, the sulphur dioxide in the mixture after catalysis is not removed, but a quantity of sulphur dioxide and oxygen corresponding to that removed as sulphur trioxide is added to the remaining mixture, which is then recirculated over the catalyst. The quantity of oxygen used is regulated according to the activity of the catalyst, so that the quantity of sulphur trioxide produced remains constant during the operation. The temperature is regulated by introducing nitrogen into the mixture. The gaseous mixture is preheated by heat from the catalyst chamber, and the catalyst employed is preferably pyrites cinders. As the process is carried out in a closed circuit, a catalyst of high activity need not be employed, and preliminary purification of the gases is not necessary. It is possible with catalysts of low activity to convert 40 per cent. of the dioxide into trioxide, and the heat developed is sufficient to preheat the gases to reaction temperature.

259,030. **RESINOUS BODIES, PROCESS OF PRODUCING.** Chemische Fabriken D. K. Albert, G.m.b.H., Amöneburg, near Biebrich on Rhine, Germany, A. Amann, 12, Aarstrasse, Wiesbaden, Prussia, and E. Fonrobert, 66, Adelheidstrasse, Wiesbaden, Prussia. Application date, October 5, 1925.

A natural acid resin is treated with a product of a phenolic body containing at least one carbonyl group, such as products

obtained from the reaction between phenol and its homologues and derivatives, and aldehydes and ketones. The products are then neutralised by treating with a substance capable of combining with at least two resin acid groups, such as dihydric or polyhydric alcohols and divalent or polyvalent metal oxides. It is found that resins obtained by this process from free natural resins such as colophony and phenol alcohols are more easily soluble in linseed oil, benzene, or turpentine, than the corresponding resins obtained by heating colophony with phenol formaldehyde resins. Those phenol aldehyde condensation products are preferably employed which have been produced in the presence of basic catalysts. The product obtained by the combination of an excess of natural acid resin with the phenolic condensation product may be subjected to distillation in vacuo so as to remove all or part of the volatile constituents of the natural resins which have not been combined with the phenol compound. The product is then treated with a reagent each molecule of which is capable of combining with at least two resin acid groups.

259,102. **"BLANC FIXE" FROM BARIUM SULPHIDE, PROCESS FOR THE PRODUCTION OF.** A. Jahl, 11, Kirchplatz, Linz-on-Rhine, Germany. International Convention date, November 5, 1925.

When barium sulphate is precipitated from barium sulphide the precipitate always contains some sulphide compounds which cannot be readily removed, so that barium chloride has been employed in the manufacture of "blanc fixe." Barium sulphide in water is hydrolysed into equimolecular proportions of barium hydroxide and barium hydrosulphide, and the precipitate obtained with alkali sulphate is not pure white. To obtain a pure "blanc fixe," a larger proportion of hydrosulphide is necessary, and this may be obtained by adding an acid or an acid salt such as a bicarbonate or magnesium chloride to the sulphide solution. It is only necessary to convert 10-15 per cent. of the total amount of the sulphide into hydrosulphide to prevent the precipitated barium sulphate from being contaminated with sulphur compounds.

259,153. **QUININE SALTS OF OXYPHENYL-ARSINIC ACIDS, MANUFACTURE OF.** F. Hoffmann-La Roche and Co., Akt.-Ges., 184, Grenzacherstrasse, Basle, Switzerland. International Convention date, November 6, 1925.

These salts are obtained by treating the free oxyphenyl-arsinic acids with quinine, or the salts of oxyphenyl-arsinic acids with soluble quinine salts. The products are soluble in hot water, alcohol, and dilute mineral acids, and the aqueous solutions are neutral to litmus.

259,166. **PHOSPHATIDES, PROCESS FOR THE PURIFICATION OF.** H. Bollmann, 1, Alsterdamm, Hamburg, Germany. International Convention date, October 6, 1925.

The emulsion obtained from oil seeds, etc., and containing phosphatides, neutral oil, free fatty acids, bitter substances, and water, is distilled under reduced pressure. In this manner the whole of the impurities distil over, and no decomposition of the phosphatides takes place. The phosphatides recovered are soluble in alcohol, slightly soluble in alcohol, or insoluble in alcohol, and may be separated by treating with strong alcohol and fractionally precipitating by cooling. The solution finally obtained may be evaporated at reduced pressure, yielding pure lecithin.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention—236,230 (W. Demann), relating to process of hydrogenating tar oils, see Vol. XIII, p. 255; 244,775 (L. W. Heffner and W. Tiddy), relating to treatment of gas liquors for removing phenolic impurities, see Vol. XIV, p. 211; 250,555 (Chemische Fabrik auf Actien, vorm. E. Schering), relating to manufacture of esters of isoborneols and borneols, see Vol. XIV, p. 578.

International Specifications not yet Accepted

257,618. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. (Assignees of Farbwerke vorm. Meister, Lucius, and Brüning, Höchst-on-Main, Germany.) International Convention date, August 26, 1925.

Bz1-benzanthronyl-ethers or substitution products not substituted in the 2-position are treated with alkaline condensing agents to obtain vat dyestuffs. The hydrocarbon residue of the ether group may be methyl, phenyl, cresyl, benzanthrionyl or anthraquinonyl. Examples are given of the fusion with caustic potash and alcohol of benzanthrionyl-Bz1-methyl- or phenyl-ether, brombenzanthrionyl-Bz1-phenyl-ether, 6-amino-benzanthronyl-Bz1-phenyl-ether, and the crude melt obtained by heating Bz1-brombenzanthrionyl and phenol, potassium acetate, and cuprous bromide.

257,619. ORGANIC SULPHOCYANO COMPOUNDS. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. (Assignees of H. P. Kaufmann, 18, Hilgenfeldweg, Jena, Germany.) International Convention date, August 27, 1925.

An organic compound is treated with a halogen and a solution of an inorganic sulphocyanic salt in water or an acid to introduce the sulphocyan group. The products can be saponified to obtain disulphides, and then reduced to obtain mercaptans. In an example, ethylene and chlorine are passed into a solution of sodium sulphocyanide in acetic acid; or ethylene is passed into a solution of sodium sulphocyanide in hydrochloric acid, and a hydrochloric acid solution of bromine added, to obtain ethylene disulphocyanide. Examples are also given of the preparation of 1-phenyl-1:2-disulphocyanogen-ethane, 1-*p*-methoxyphenyl-1:2-disulphocyanogen-propane, *p*-sulphocyan-aniline, *p*-disulphocyanodiphenylamine, 5-sulphocyanosalicylic acid, and others.

257,622. ACETALS. Consortium für Elektrochemische Industrie Ges., 20, Zielstattstrasse, Munich, Germany. International Convention date, August 27, 1925.

A monohydric or polyhydric alcohol is treated with acetylene in the presence of a mercury salt to obtain acetals, and the product is removed continuously to avoid its conversion into resinous compounds. The product may be removed as vapour by using an excess of acetylene, or by passing benzene vapour, carbon dioxide or nitrogen through the mixture; or benzene may be added to the mixture. Alternatively, an immiscible solvent for the acetal, such as paraffin oil, may be added, or an elevated temperature or reduced pressure may be employed. In an example, a suspension of mercury acetate in ethyl alcohol is mixed with concentrated sulphuric acid, and acetylene is passed in excess through the mixture, which is kept at 75° C. by cooling. Diethylacetal and alcohol are condensed from the issuing gases, and the excess of acetylene is returned to the reaction.

LATEST NOTIFICATIONS.

260,212. Process for the production of a basic copper sulphate suitable for the manufacture of ammoniacal copper oxide cellulose solutions for the spinning of artificial silk by the stretch-spinning process. J. P. Bemberg Akt.-Ges. October 20, 1925.

260,225. Process for the production of phosphorous pentoxide or phosphoric acid. I. G. Farbenindustrie Akt.-Ges. October 22, 1925.

260,236. Process for the continuous treatment of crude carbon bisulphide. I. G. Farbenindustrie Akt.-Ges. October 24, 1925.

260,243. Manufacture and production of cleansing and emulsifying agents. I. G. Farbenindustrie Akt.-Ges. October 21, 1925.

260,253. Manufacture and production of condensation products of urea and formaldehyde. I. G. Farbenindustrie Akt.-Ges. October 21, 1925.

260,288. Manufacture of aldehyde condensation products. Soc. of Chemical Industry in Basle. October 22, 1925.

260,289. British Celanese, Ltd. Extraction of dyestuffs. October 24, 1925.

260,305. Manufacture of acetaldehyde. Consortium für Elektrochemische Industrie Ges. October 26, 1925.

Specifications Accepted with Date of Application

237,257. De-oxygenating air by the combustion of sulphur or its incompletely oxidised compounds, Process and apparatus for. T. Chmura. July 14, 1925.

243,761. Iron alloys. H. G. Flodin and E. G. T. Gustafsson. November 29, 1924.

244,481. Pigments, Process for the manufacture of. F. Rantjen and M. Ragg. December 11, 1924.

248,376. Carbonising wood or like material, Apparatus for. H. Hennebutte and E. Goutal. February, 1925.

252,654. Cellulose derivatives, Manufacture of. L. Lilienfeld. May 30, 1925.

253,498. Heat treatment or carbonisation of coal. International Combustion Engineering Corporation. June 12, 1925. Addition to 242,621.

255,811. 2-hydrazino-5-nitropyridine, Process for the production of. Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler. July 22, 1925.

259,631. *N*-butyl alcohol and acetone, Fermentation processes for the production of. A. P. H. Desborough, A. C. Thayer, and B. M. Green. May 6, 1925.

259,641. Acetic acid, Manufacture of. H. Dreyfus. June 13, 1925.

259,643. Hydrogen practically free from carbon monoxide starting from water gas, Production of. G. Cicali. June 15, 1925.

259,669. Neutralising the free acid which exists in commercial sulphate of ammonia, Method of and means for. Coke and Gas Ovens, Ltd., and R. Pearson. July 14, 1925.

259,704. Carbon monoxide, Process for separating, from industrial gases. A. A. L. J. Damiens. August 6, 1925. Addition to 230,106.

259,795. Carbonaceous materials, Method of treating. W. F. Trent. December 3, 1925.

259,889. Deflocculating solids, Process of. G. W. Acheson. May 8, 1926.

Applications for Patents

Barrs, E. and W. Recovery of alkali from liquors. 27,048. October 28.

Bates, C. Elevating acids, etc. 27,211. October 30.

Bergedorfer Eisenwerk Akt.-Ges. Removing solid hydrocarbons from fluid hydrocarbons. 26,787. October 26. (Germany, August 16.)

British Celanese, Ltd., and Ellis, G. H. Treatment of materials containing cellulose derivatives. 27,216. October 30.

British Dyestuffs Corporation, Ltd. Fuels for internal combustion engines. 26,635. October 25.

British Dyestuffs Corporation, Ltd. Manufacture of metal derivatives of β -diketones. 27,015. October 28.

Carmichael, J. F., and Carmichael and Co., Ltd., J. F. Distillation of tar, etc. 26,956. October 28.

Consortium für Elektrochemische Industrie Ges. Manufacture of acetaldehyde. 26,754. October 26. (Germany, October 26, '25.)

Goffey, S. Manufacture of metal derivatives of β -diketones. 27,015. October 28.

I. G. Farbenindustrie Akt.-Ges. Vat dyestuffs. 26,625. October 25. (Germany, October 29, '25.)

I. G. Farbenindustrie Akt.-Ges. Activation of silicic acid gel. 26,776. October 26. (Germany, December 22, '25.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of alkylnaphthalenes. 27,013. October 28. (Germany, October 28, '25.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of alkaline. 27,014. October 28. (Germany, October 28, '25.)

McKee, R. H. Methods of making organic peroxides. 26,806. October 26.

Mertens, E. Process of purifying raw lanolin. 26,920. October 27. (Belgium, July 1.)

Oesterreichische Chemische Werke Ges. Production of persulphuric acid, etc. 26,917. October 27. (Austria, January 28.)

Soc. of Chemical Industry in Basle. Intermediate products for dyestuffs. 27,224. October 30. (Germany, October 31, '25.)

United Provinces Indigo Crop

A FIRST forecast has been published of the 1926 indigo crop of the United Provinces (representing on an average of the five years ending 1924-25, some 11.9 per cent. of the total area under indigo in India). The area under indigo irrigated from canals as published by the Irrigation Department up to the end of July, 1926, amounts to 12,552 acres, as compared with 12,510 acres up to the same period last year. According to the advance returns furnished by the district officers, the total area amounts to 15,000 acres compared with 14,000 acres estimated at this time last year and 14,818 acres as revised actual area. Taking the province as a whole the crop is at present estimated at 75 per cent. of the normal. The total outturn of dye after allowing for next year's seed is estimated at 2,500 factory maunds.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
 ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
 BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.
 BLEACHING POWDER.—Spot, £9 10s. d/d; Contract, £8 10s. d/d, 4-ton lots.
 BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)
 CALCIUM CHLORIDE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.
 COPPER SULPHATE.—£25 to £25 10s. per ton.
 METHYLATED SPIRIT 64 O.P.—Industrial, 2s. 5d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.
 NICKEL SULPHATE.—£38 per ton d/d.
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
 POTASH CAUSTIC.—£30 to £33 per ton.
 POTASSIUM BICHROMATE.—4½d. per lb.
 POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
 SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.
 SODIUM ACETATE 97/98%.—£21 per ton.
 SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.
 SODIUM BICHROMATE.—3½d. per lb.
 SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.
 SODIUM CHLORATE.—2½d. per lb.
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.
 SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
 SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4½d. to 6½d. per lb. Crude 60's, 1s. 5d. to 1s. 6d.
 ACID CRESYLIC 99/100.—2s. 6d. per gall. Steady. 97/99.—2s. to 2s. 1d. per gall. Pale, 95%, 1s. 10d. to 2s. 4d. per gall. Dark, 1s. 9d. to 2s. 2d. per gall.
 ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.
 ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.
 BENZOL.—Crude 65's, 1s. 4d. to 1s. 5d. per gall., ex works in tank wagons. Standard Motor, 2s. to 2s. 3d. per gall., ex works in tank wagons. Pure, 2s. 3d. to 3s. per gall., ex works in tank wagons. Scarce and firm.
 TOLUOL.—90%, 2s. to 3s. 3d. per gall. Firm. Pure, 2s. 3d. to 3s. 6d. per gall.
 XYLOL.—2s. 3d. to 3s. per gall. Pure, 4s. per gall.
 CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6½d. to 9d.; middle oil, 7½d. to 7½d. per gall. Heavy, 8½d. to 9d. per gall.
 NAPHTHA.—Crude, 10d. to 1s. 1d. per gall. according to quality. Solvent 90/160, 2s. to 2s. 3d. per gall. Solvent 90/190, 1s. 3½d. to 1s. 4d. per gall.
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £4 10s. to £7 per ton. Whizzed or hot pressed, £5 10s. to £8.
 NAPHTHALENE.—Crystals, £11 10s. to £12 10s. per ton. Quiet. Flaked, £12 10s. to £13, according to districts.
 PITCH.—Medium soft, 17/7s. 6d. to 200s. per ton, according to district.
 PYRIDINE.—90/140, 15s. to 17s. per gall. Nominal. Heavy, 7s. to 10s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
 ACID ANTHRANILIC.—6s. 6d. per lb. 100%.
 ACID BENZOIC.—1s. 9d. per lb.
 ACID GAMMA.—8s. per lb.
 ACID H.—3s. 3d. per lb. 100% basis d/d.
 ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.
 ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.
 ACID SULPHANILIC.—9d. per lb. 100% basis d/d.
 ANILINE OIL.—9½d. per lb. naked at works.
 ANILINE SALTS.—9½d. per lb. naked at works.
 BENZALDEHYDE.—2s. 1d. per lb.
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
 BENZOIC ACID.—1s. 8½d. per lb.
 o-CRESOL 29/31° C.—3½d. to 3½d. per lb.
 m-CRESOL 98/100%.—2s. 3d. per lb.
 p-CRESOL 32/34° C.—2s. 3d. per lb.
 DICHLORANILINE.—2s. 3d. per lb.
 DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.
 DINITROBENZENE.—9d. per lb. naked at works.
 DINITROCHLOROBENZENE.—£84 per ton d/d.
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.
 a-NAPHTHOL.—2s. per lb. d/d.
 B-NAPHTHOL.—11d. to 1s. per lb. d/d.
 a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.
 B-NAPHTHYLAMINE.—3s. per lb. d/d.
 o-NITRANILINE.—5s. 9d. per lb.
 m-NITRANILINE.—3s. per lb. d/d.
 p-NITRANILINE.—1s. 9d. per lb. d/d.
 NITROBENZENE.—7d. per lb. naked at works.
 NITRONAPHTHALENE.—10d. per lb. d/d.
 R. SALT.—2s. 4d. per lb. 100% basis d/d.
 SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.
 o-TOLUIDINE.—9d. per lb. naked at works.
 p-TOLUIDINE.—2s. 2d. per lb. naked at works.
 m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 to £10. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.
 CHARCOAL.—£8 to £10 per ton, according to grade and locality.
 IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall. 24° Tw.
 RED LIQUOR.—9½d. to 1s. per gall.
 WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.
 WOOD NAPHTHA, MISCIBLE.—4s. per gall., 60% O.P. Solvent, 4s. per gall. 40% O.P. Both scarce and in good demand.
 WOOD TAR.—£3 to £5 per ton, according to grade.
 BROWN SUGAR OF LEAD.—£41 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5½d. per lb., according to quality. Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.
 ARSENIC SULPHIDE, YELLOW.—2s. per lb.
 BARYTES.—£3 10s. to £6 15s. per ton, according to quality.
 CADMIUM SULPHIDE.—2s. 9d. per lb.
 CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.
 CARBON BLACK.—5½d. per lb., ex wharf.
 CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.
 CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
 DIPHENYLGUANIDINE.—3s. 9d. per lb.
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.
 LAMP BLACK.—£35 per ton, barrels free.
 LEAD HYPOSULPHITE.—9d. per lb.
 LITHOPONE, 30%.—£22 10s. per ton.
 MINERAL RUBBER "RUBPRON".—£13 12s. 6d. per ton f.o.r. London.
 SULPHUR.—£9 to £11 per ton, according to quality.
 SULPHUR CHLORIDE.—4d. per lb., carboys extra.
 SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.
 THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
 VERMILION, PALE OR DEEP.—5s. 3d. per lb.
 ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

- ACID, ACETIC, 80% B.P.—£39 per ton ex wharf London in glass containers.
- ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 6d. per lb.
- ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.
- ACID, BORIC B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.
- ACID, CAMPHORIC.—19s. to 21s. per lb.
- ACID, CITRIC.—1s. 3½d. per lb.
- ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
- ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.
- ACID, SALICYLIC, B.P.—1s. 3d. to 1s. 4½d. per lb. Technical.—11d. to 11½d. per lb.
- ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.
- ACID, TARTARIC.—11d. to 1s. per lb., less 5%.
- AMIDOL.—9s. 6d. per lb., d/d.
- ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.
- AMIDOPYRIN.—11s. 6d. per lb.
- AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.
- AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.
- ASPIRIN.—2s. 4d. to 2s. 5d. per lb. Good inquiry.
- ATROPINE SULPHATE.—11s. per oz. for English make.
- BARBITONE.—8s. 9d. per lb.
- BENZONAPHTHOL.—3s. 3d. per lb. spot.
- BISMUTH CARBONATE.—12s. 3d. to 14s. 3d. per lb.
- BISMUTH CITRATE.—9s. 3d. to 11s. 3d. per lb.
- BISMUTH SALICYLATE.—10s. to 12s. per lb.
- BISMUTH SUBNITRATE.—10s. 6d. to 12s. 6d. per lb., all bismuth salts, according to quantity.
- BORAX B.P.—Crystal, £27; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.
- BROMIDES.—Potassium, 1s. 8d. to 1s. 10d. per lb.; sodium, 1s. 10d. to 2s. 1d. per lb.; ammonium, 2s. to 2s. 9d. per lb., all spot.
- CALCIUM LACTATE.—1s. 3d. to 1s. 5d.
- CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.
- CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
- CREOSOTE CARBONATE.—6s. per lb.
- FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
- GUAIACOL CARBONATE.—6s. 6d. to 7s. per lb.
- HEXAMINE.—2s. 4d. to 2s. 6d. per lb.
- HOMATROPINE HYDROBROMIDE.—30s. per oz.
- HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
- HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.
- HYDROQUINONE.—4s. per lb., in cwt. lots.
- HYPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
- IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
- IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.
- MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.
- MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.
- MENTHOL.—A.B.R. recrystallised B.P., 19s. 3d. net per lb.; Synthetic, 11s. to 12s. per lb., according to quantity; Liquid (95%), 12s. per lb.; Detached Cryst., 13s. 9d. per lb.
- MERCURIALS.—Red Oxide, 6s. 5d. to 6s. 7d. per lb., levig., 6s. to 6s. 1d. per lb.; Corrosive Sublimate, Lump, 4s. 8d. to 4s. 10d. per lb., Powder, 4s. 2d. to 4s. 3d. per lb.; White Precipitate, 4s. 10d. to 5s. per lb., Powder, 5s. to 5s. 1d. per lb., Extra Fine, 5s. 1d. to 5s. 2d. per lb.; Calomel, 5s. 3d. to 5s. 5d. per lb.; Yellow Oxide, 5s. 10d. to 5s. 11d. per lb.; Persulph, B.P.C., 5s. 1d. to 5s. 2d. per lb.; Sulph. nig., 4s. 10d. to 4s. 11d. per lb.
- METHYL SALICYLATE.—1s. 6d. per lb.
- METHYL SULPHONAL.—15s. 6d. per lb.
- METOL.—11s. per lb. British make.
- PARAFORMALDEHYDE.—1s. 9d. for 100% powder.
- PARALDEHYDE.—1s. 2d. to 1s. 4d. per lb.
- PHENACETIN.—3s. 9d. to 4s. per lb.
- PHENAZONE.—5s. 9d. to 6s. per lb.
- PHENOLPHTHALEIN.—3s. 9d. to 4s. per lb.
- POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—81s. per cwt., less 2½% for ton lots.
- POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.
- POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
- POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity. Good steady demand.
- POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
- POTASSIUM PERMANGANATE.—B.P. crystals, 6½d. per lb., spot.
- QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. in 100 oz. tins.
- RESORCIN.—4s. to 4s. 3d. per lb., spot.
- SACCHARIN.—55s. per lb. Fair inquiry.
- SALOL.—3s. per lb.
- SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.
- SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 2s. 2d. per lb. B.P.C., 1923.—2s. 6d. to 2s. 8d. per lb. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
- SODIUM FERROCYANIDE.—4d. per lb. carriage paid.
- SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
- SODIUM NITROPRUSSIDE.—16s. per lb.
- SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—80s. to 85s. per cwt., according to quantity.
- SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb. Strong demand.
- SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
- SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.
- SULPHONAL.—10s. 6d. per lb.
- TARTAR EMETIC, B.P.—Crystal or Powder, 1s. 11d. to 2s. per lb.
- THYMOL.—11s. to 12s. per lb., according to quantity. Exceptionally heavy demand.

Perfumery Chemicals

- ACETOPHENONE.—10s. per lb.
- AUBEPINE (EX ANETHOL).—12s. per lb.
- AMYL ACETATE.—2s. per lb.
- AMYL BUTYRATE.—5s. 6d. per lb.
- AMYL SALICYLATE.—3s. per lb.
- ANETHOL (M.P. 21/22° C.).—6s. per lb.
- BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 3d. per lb.
- BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 3d. per lb.
- BENZALDEHYDE FREE FROM CHLORINE.—2s. 9d. per lb.
- BENZYL BENZOATE.—2s. 6d. per lb.
- CINNAMIC ALDEHYDE NATURAL.—18s. per lb.
- COUMARIN.—11s. 6d. per lb.
- CITRONELLOL.—15s. per lb.
- CITRAL.—9s. 6d. per lb.
- ETHYL CINNAMATE.—10s. per lb.
- ETHYL PHTHALATE.—3s. per lb.
- EUGENOL.—10s. per lb.
- GERANIOL (PALMAROSA).—19s. per lb.
- GERANIOL.—6s. 3d. to 10s. 6d. per lb.
- HELIOTROPINE.—4s. 10d. per lb.
- ISO EUGENOL.—13s. 6d. per lb.
- LINALOL.—Ex Shui Oil, 12s. Ex Bois de Rose, 17s. per lb.
- LINALYL ACETATE.—Ex Shui Oil, 15s. Ex Bois de Rose, 18s. 6d. per lb.
- METHYL ANTHRANILATE.—9s. 3d. per lb.
- METHYL BENZOATE.—5s. per lb.
- MUSK KETONE.—36s. per lb.
- MUSK XYLOL.—8s. 6d. per lb.
- NEROLIN.—3s. 9d. per lb.
- PHENYL ETHYL ACETATE.—12s. per lb.
- PHENYL ETHYL ALCOHOL.—10s. per lb.
- RHODINOL.—30s. per lb.
- SAFROL.—1s. 6d. per lb.
- TERPINEOL.—1s. 6d. per lb.
- VANILLIN.—18s. 6d. to 20s. per lb.

Essential Oils

- ALMOND OIL.—11s. 6d. per lb.
- ANISE OIL.—3s. 8d. per lb.
- BERGAMOT OIL.—36s. 9d. per lb.
- BOURBON GERANIUM OIL.—11s. 6d. per lb.
- CAMPHOR OIL.—67s. 6d. per cwt.
- CANANGA OIL, JAVA.—20s. per lb.
- CINNAMON OIL, LEAF.—5½d. per oz.
- CASSIA OIL, 80/85%.—9s. 3d. per lb.
- CITRONELLA OIL.—Java, 85/90%, 2s. 6d. Ceylon, pure, 2s. 1d. per lb.
- CLOVE OIL.—6s. 9d. per lb.
- EUCALYPTUS OIL, 70/75%.—2s. per lb.
- LAVENDER OIL.—French 38/40%, Esters, 18s. 6d. per lb.
- LEMON OIL.—10s. 6d. per lb.
- LEMONGRASS OIL.—4s. 6d. per lb.
- ORANGE OIL, SWEET.—10s. 3d. per lb.
- OTTO OF ROSE OIL.—Bulgarian, 70s. per oz. Anatolian, 30s. per oz.
- PALMA ROSA OIL.—9s. 9d. per lb.
- PEPPERMINT OIL.—Wayne County, 35s. per lb. Japanese, 11s. per lb.
- PETITGRAIN OIL.—9s. per lb.
- SANDALWOOD OIL.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, November 4, 1926.

BUSINESS has been quietly steady during the past week but the turnover has fallen rather below the average for October. There are few points of interest and prices are extremely firm and in many directions indicate an upward tendency. Export trade is quiet.

General Chemicals

ACETONE is again lower in value, price is nominally £65 to £66 per ton.

ACID ACETIC remains in satisfactory demand; price unchanged.

ACID CITRIC is slow and the market is overstocked. Price about 1s. 2½d. per lb.

ACID FORMIC is quiet, but price is steady at £48 to £50 per ton.

ACID LACTIC is a quiet market at £45 per ton for 50% by weight.

ACID OXALIC has been in little better demand at 3½d. to 3¾d. per lb.

ACID TARTARIC is lifeless and is quoted at 11½d. per lb.

ALUMINA SULPHATE is in good request at about £5 10s. per ton for 17-18 per cent.

AMMONIUM CHLORIDE continues depressed, price nominally £18 10s. per ton.

BARIUM CHLORIDE is in good demand, spot price unchanged at £9 10s. per ton.

COPPER SULPHATE is a firm market at £23 to £23 10s. per ton. A further advance in price is not unlikely.

CREAM OF TARTAR is firmer at £73 per ton. A further advance is expected owing to the improvement in continental exchanges.

EPSOM SALTS are firm at £5 10s. per ton.

FORMALDEHYDE is in short supply for early delivery and is quoted £42 per ton.

LEAD ACETATE is rather irregular and is quoted £44 to £45 per ton for white, and £43 per ton for brown.

METHYL ACETONE is very firm at £55 to £57 per ton, for high grade material.

METHYL ALCOHOL is quiet and without feature.

POTASSIUM CHLORATE.—Unchanged at 3½d. per lb.

POTASSIUM PERMANGANATE is a steady market at 7½d. per lb. for B.P. grade.

POTASSIUM PRUSSATE is very firm and quoted at 7d. to 7½d. per lb.

SODA ACETATE is firmer at £20 to £20 5s. per ton.

SODA BICHROMATE.—The British makers' price is unchanged; a satisfactory turnover is reported.

SODA CHLORATE is firmer at 3½d. per lb.

SODA NITRITE is quoted £20 per ton, and is in very fair demand.

SODA PHOSPHATE is firm at £14 to £14 5s. per ton.

SODA PRUSSATE is very firm and is quoted 4½d. to 4¾d. per lb.

SODA SULPHIDE is weaker with tendency still in buyers' favour.

ZINC SULPHATE.—Unchanged.

Coal Tar Products

With the continuance of the coal strike, prices generally for coal tar products remain on a high level, and products are somewhat difficult to obtain.

90's BENZOL is firm at 2s. 2d. per gallon, on rails, while the motor quality is quoted at 2s. 1½d. per gallon, on rails.

PURE BENZOL is worth anything from 4s. to 4s. 6d. per gallon.

CREOSOTE OIL is worth about 8d. per gallon, on rails at works in the country. Despite the continuance of the coal strike, this product seems to be a little more plentiful than has been the case for the last week or two.

CRESYLIC ACID remains unchanged at 2s. 2d. per gallon, on rails, for the pale quality 97/99 per cent., while the dark quality 95/97 per cent. is worth about 2s. 1d. per gallon.

SOLVENT NAPHTHA is unchanged at 1s. 10d. per gallon, on rails, and is difficult to obtain.

HEAVY NAPHTHA is quoted at 1s. 6d. to 1s. 7d. per gallon, on rails.

NAPHTHALENES are scarce, the 76/78 quality being worth about £8 to £8 10s. per ton, while the 74/76 quality is worth about £7 10s. to £7 15s. per ton, at makers' works.

PITCH is unchanged, remains scarce, and is worth £9 to £10 per ton, f.o.b. U.K. port.

Latest Oil Prices

LONDON.—LINSEED OIL steady at 10s. to 5s. decline; spot, £31 5s., ex mill; November to April, £30 2s. 6d.; May-August, £30. RAPE OIL steady and unchanged. Crude extracted, £44; technical, refined, £46, ex wharf. COTTON OIL steady. Refined common edible, £40; Egyptian crude, £34; and deodorised, £42 per ton.

HULL.—LINSEED OIL.—Naked spot, £30 17s. 6d.; November-December, £30 15s.; January-April, £30 10s.; May-August, £30 5s. COTTON OIL.—Naked Bombay, crude, £33; Egyptian crude (old), £33 10s.; ditto (new), £34 10s.; edible refined, £38; technical, £36 15s. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £41. GROUNDNUT OIL.—Crushed/extracted, £43; deodorised, £47. SOYA OIL.—Extracted and crushed, £35; deodorised, £38 10s. RAPE OIL.—Crude, extracted, £46 5s.; refined, £48 5s. per ton, net, cash terms, ex mill. CASTOR OIL and COD OIL unaltered.

Nitrogen Products

EXPORT.—During the past week the business for export from the U.K. has been very small. Prices of sulphate of ammonia remain unchanged on the basis of £11 5s. per ton, f.o.b. U.K. port in single bags.

HOME.—British producers have unexpectedly raised the home price by 5s. per ton delivery November and onwards. This did not come as a complete surprise to the market, as prices had previously been raised in France and Belgium, and the prolongation of the coal stoppage affects the supply enormously. Another reason for the increase is the increase in freight due to longer carriages as fewer sources of supply can be tapped. Merchants who booked early will this year get a distinct advantage.

NITRATE OF SODA.—The nitrate position continues to improve. At time of going to press the total sales for the Producers Association have reached 437,000 tons against 1,356,000 tons at the same time last year. On account of the coal stoppage here nitrate freights have become difficult to arrange and expensive. As a consequence nitrate of lime and sulphate of ammonia are making inroads in the nitrate markets. Americans are still purchasing on a satisfactory scale. It seems certain that the producers' statistical position will continue to improve. But as it seems likely that some of the Chilean

production will not reach distant markets in time for consumption, apart from price considerations, a large stock will be carried over.

Calcium Cyanamide

THE demand for this fertiliser at the present time chiefly relates to its use for autumn application to grassland. The price for calcium cyanamide to farmers for November delivery is £9 8s. per ton for four ton lots, carriage paid to any railway station in Great Britain.

Harrison Memorial Prize

IN accordance with the trust deed governing the Harrison Memorial Fund, the Harrison Memorial Prize Selection Committee will proceed to make an award of the Harrison Prize in December next. The prize, of the value of about £150, is to be awarded to the chemist of either sex being a natural-born British subject and not at the time over thirty years of age, who, in the opinion of the selection committee, during the previous five years has conducted the most meritorious and promising original investigations in any branch of pure or applied chemistry, and published the results of those investigations in a scientific periodical or periodicals. Provided that in the opinion of the selection committee there is a candidate of sufficient distinction to warrant an award of the prize the award is to be made in December, 1926. Applications should contain the following information: name (in full); age (birth certificate to accompany application); degrees (name of university where obtained); other qualifications; experience; titles of published papers, with authors' names, including full references to publication; where research was carried out; testimonials or references; any other information bearing on the application. The selection committee is prepared to receive applications, nominations or information as to candidates eligible for the prize. Any such communication must be received by the president, the Chemical Society, Burlington House, Piccadilly, London, W.1., not later than Wednesday, December 1, 1926.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, November 3, 1926.

THE continuance of the coal strike prevents business on any large scale, and although inquiry is fairly plentiful quantities asked for are amall. Prices both for home and Continental products remain steady.

Industrial Chemicals

ACID ACETIC, 98/100%.—£55 to £67 per ton according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 to £38 per ton; 80% technical, £37 to £38 per ton c.i.f. U.K. ports.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton; powdered, £49 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC ICE CRYSTALS.—In good demand and price advanced to about 5½d. per lb. delivered or f.o.b. U.K. ports.

ACID CITRIC B.P. CRYSTALS.—Nominally 1s. 3½d. per lb., less 5% ex store, but this price could probably be shaded for any appreciable quantity. On offer from the Continent at 1½d. per lb., less 5%, ex wharf, prompt shipment.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy ex works.

ACID NITRIC, 80%.—Usual steady demand and price unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC 98/100%.—Spot material unchanged at 3½d. per lb., ex store. Offered for prompt shipment from the Continent at 3½d. per lb., c.i.f. U.K. ports, duty paid.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC B.P. CRYSTALS.—Spot material now on offer at 11½d. per lb., less 5%, ex store. Quoted 11½d. per lb., less 5%, ex wharf, prompt shipment.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material on offer at about £6 per ton, ex store. Quoted £5 8s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the Continent.

ALUM, LUMP POTASH.—Spot material unchanged at £9 per ton, ex store. Offered from the Continent at about £7 15s. per ton, c.i.f. U.K. port. Crystal powdered quality, £7 10s. per ton, c.i.f. U.K. ports. Spot material about £8 5s. per ton, ex store.

AMMONIA ANHYDROUS.—Imported material selling at about 11½d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers crystals of British manufacture quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of Continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED CORNISH.—Rather easier. Now quoted £18 5s. per ton, ex wharf, prompt despatch from mines. Spot material on offer at £19 5s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals now on offer from the Continent at about £8 15s. per ton, c.i.f. U.K. ports. Spot material quoted £9 10s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works, Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts 20s. per ton less. Continental now quoted £7 15s. per ton, c.i.f. U.K. ports.

BORAX, GRANULATED.—£22 10s. per ton. Crystals, £23 per ton. Powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or at £4 2s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material on offer at about £22 per ton, ex wharf. Moderate inquiry for export and price of English material about £23 5s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Spot material on offer at £40 per ton, ex store. Quoted £38 per ton, c.i.f. U.K. ports, prompt shipment.

GLAUBER SALTS.—English material quoted £4 per ton, ex store or station. Continental on offer at about £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material quoted £37 10s. per ton, ex store. LEAD, WHITE.—Quoted £38 per ton, ex store.

LEAD, ACETATE.—White crystals quoted £44 per ton, c.i.f. U.K. ports. Brown about £40 10s. per ton, c.i.f. U.K. ports.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store in moderate demand.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton c.i.f. U.K. ports according to quantity and destination. Spot material available at about £29 per ton.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb. delivered.

POTASSIUM CARBONATE 96/98%.—Quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £26 10s. per ton, ex store. 90/94% quality quoted £22 5s. per ton c.i.f. U.K. ports.

POTASSIUM CHLORATE 98/100%.—Powdered quality available at about £25 5s. per ton c.i.f. U.K. ports. Crystal, £2 per ton extra.

POTASSIUM NITRATE (SALTPETRE).—Spot material quoted £24 per ton, ex store. On offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—On offer at 7d. per lb. ex store, spot delivery. Quoted 6½d. per lb. ex wharf, early shipment.

POTASSIUM PRUSSIAN, YELLOW.—In little demand. Quoted 6½d. per lb. ex store, or 6½d. per lb. ex wharf, early delivery.

SODA CAUSTIC.—76/77% at £17 10s. per ton; 70/72%, £16 2s. 6d. per ton; broken, 60%, £16 12s. 6d. per ton; powdered 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—English material on offer at £22 per ton, ex station. Continental quoted £18 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality £10 10s. per ton, ex quay or station. M. W. quality 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb. delivered.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, £1 7s. 6d. per ton more. Alkali 59%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 per ton ex station, minimum 4 ton lots. Pea crystals, photographic quality £14 10s. per ton ex store, spot delivery. Continental commercial crystals quoted £8 15s. per ton, ex store.

SODIUM NITRITE 100%.—Quoted £20 17s. 6d. per ton ex store, spot delivery.

SODIUM PRUSSIAN (YELLOW).—In fairly good demand and quoted price unchanged at 4d. per lb. ex store, spot delivery. Offered from the Continent at a fraction less.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption £3 10s. per ton ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE.—60/62% solid, £13 5s. per ton. Broken, £14 5s. per ton. Flake, £15 5s. per ton. Crystals, 31/34%, £8 12s. 3d. per ton. All delivered buyers works U.K. minimum 5 ton lots with slight reduction for contracts. 60/62% solid quality offered from the Continent at about £8 15s. per ton, c.i.f. U.K. ports. Broken quality 15s. per ton more. Crystals 30/32% about £6 10s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 15s. per ton; roll, £10 10s. per ton; rock, £10 10s. per ton; floristella, £10 per ton; ground American, £9 5s. per ton, ex store, spot delivery. Prices nominal.

ZINC CHLORIDE.—British material 98/100% quoted £24 15s. per ton f.o.b. U.K. ports. 98/100% solid on offer from the Continent at about £21 15s. per ton c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental make on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

SODIUM NAPHTHIONATE.—1s. 8d. per lb. 100%. Fair home inquiries.

ALPHA NAPHTHYLAMINE.—1s. 3d. per lb. Some home inquiries.

PARA AMIDO ACETANILIDE.—4s. 1d. per lb. 100%. Some home inquiries.

BETA NAPHTHOL.—11d. to 1s. per lb. Some home inquiries.

Oxy-Acetylene Welding

At a meeting of the British Acetylene and Welding Association, held on Wednesday at the Old Colony Club, London, Mr. Samuel Fox (of Hartley and Sugden, Ltd.) delivered a lecture on "Oxy-Acetylene Welding in the Construction of Boilers." Mr. Fox said that at first prejudice against the gas-welding process was very strong throughout the whole trade. To-day there was hardly a fire welder in the boiler-making industry outside London.

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT.)

Manchester, November 4, 1926.

CHEMICAL traders this week have experienced the usual quiet demand in most sections of the market, and buyers continue to show little interest in commitments for forward delivery, most of the transactions during the current week having been in respect of prompt or early parcels. This applies more particularly to the home trade, although in respect of export business, also, there is not a great deal being done at the moment. The Eastern markets have been taking fair quantities of some of the bread-and-butter lines of heavy chemicals, and there has been a certain amount of inquiry from Canada and other Dominions, but Continental business remains slow.

Heavy Chemicals

Bichromate of soda is not in too plentiful supply and prices are firm in consequence, with 3½d. to 3¼d. per lb. now being quoted for this material. Bicarbonate of soda is fully maintained at about £10 10s. per ton, in bags, and a quiet trade is being put through. Sulphide of sodium remains a slow section and prices have an easy tendency, with 60-65 per cent. concentrated solid on offer at £10 per ton and commercial material at about £7. Bleaching powder is in moderate request with values held at about £8 10s. per ton. Prussiate of soda still displays a certain amount of firmness, with to-day's price at round 4½d. per lb. Caustic soda is also well maintained at from £15 2s. 6d. per ton for 60 per cent. strength to £17 10s. for 76 per cent., and the demand for this is moderately active. Hyposulphite of soda continues to move off slowly, but values are not much changed from last week, commercial offering at about £9 5s. per ton and photographic at about £15 10s. Nitrite of soda is steady and meets with a fair demand at £19 5s. per ton. Saltcake is slow but unchanged in price at about £3 5s. per ton. Glauber salts also are moving off only in limited quantities at £3 15s. per ton. Chlorate of soda is on offer at about 3½d. per lb., without receiving much attention from buyers. Alkali is steady and in moderate demand at £6 15s. per ton. Phosphate of soda is maintained at £12 15s. to £13 per ton but there is only a quiet business passing in this material.

There has been a certain amount of business done in caustic potash during the past week at steady prices, about £27 per ton still being quoted. Carbonate of potash has also attracted some attention at £26 to £26 5s. per ton. There is a quiet demand for yellow prussiate of potash at 6½d. per lb. Chlorate of potash is rather slow with offers at from 3½d. to 3¾d. per lb. Bichromate of potash keeps rather firm, with about 4½d. per lb. now being asked for this. Permanganate of potash is an easy section and there is not much demand at the moment; commercial quality is quoted at about 5d. per lb. and B.P. at 6½d.

Arsenic meets with a quiet demand, and as supplies are still on the short side the recent firmness is fully maintained, with £16 to £16 10s. per ton asked for white powdered, Cornish makes, at the mines. Sulphate of copper keeps fairly steady at £22 15s. per ton, f.o.b., with a moderate export inquiry reported this week. Nitrate of lead keeps steady and meets with a fair demand at round £41 per ton. Acetate of lead is perhaps a shade lower at £45 per ton for white material and £41 for brown. Although rather quiet, the acetates of lime are firm on comparative scarcity, with grey quoted at £17 10s. per ton and brown at £8 to £8 5s.

Acids and Tar Products

Oxalic acid keeps steadier and meets with a quiet demand at 3¾d. per lb. There is little business passing in tartaric acid, but quotations are about unchanged at 11½d. per lb. For citric acid from 1s. 3½d. to 1s. 3¼d. per lb. is being asked, but sales are rather slow. Acetic acid keeps steady and continues to meet with a fair amount of inquiry at £66 per ton for the glacial quality and £37 per ton for 80 per cent. commercial.

The market for tar products remains much as it was, except that pitch is again dearer at about £10 per ton, f.o.b. Supplies, however, as is the case with almost all the products in this section, are very scarce and actual business is slow. Crystal carbolic acid is firm at about 7d. per lb. and creosote oil at 8¾d. to 9d. per gallon, with solvent naphtha quoted at about 1s. 11d. per gallon.

Northern Coke Research Committee

A Co-operative Research Scheme

AT a meeting held at Armstrong College, Newcastle, on October 26, with Dr. Cecil A. Cochrane in the chair, and attended by representatives of the Cumberland and Durham Coal Owners' Associations, the Cleveland Ironmasters' Association, the West Coast Blast Furnace Owners' Association, the National Federation of Iron and Steel Manufacturers, and the Newcastle and Gateshead Gas Co., a Northern Coke Research Committee was formed for the purpose of investigating, in co-ordination with other research centres, the properties of cokes produced and used in the northern area and of the coals from which they are made, in order to develop means whereby improved products and improved methods of manufacture of coke might be attained.

Dr. Cochrane, in welcoming the representatives, emphasised the fact that experience in other areas had conclusively demonstrated the great value of such work as was proposed, and said that Armstrong College was able to provide laboratory accommodation and equipment and technical direction for the work to be undertaken, and could provide the services of a research worker.

Mr. Edgar C. Evans, of the National Federation of Iron and Steel Manufacturers, outlined work on similar lines that was being conducted in the University of Sheffield and by the Fuel Research Board, and it was decided that the fullest possible co-ordination of the proposed work at Armstrong College with that already in progress at other centres should be secured.

Professor H. V. A. Briscoe was appointed Secretary to the Committee, and the immediate direction of research will be entrusted jointly to him and Professor Granville Poole. It is anticipated that Dr. Cochrane will accept the chairmanship of the Committee.

The constitution of the Committee is so framed as to ensure the fullest possible representation of all interested in coal, iron and steel, and gas, together with such Government departments as were interested in the work, and thus ensure a collective and co-ordinated effort directed to solve the problems of coke manufacture and use that are of such vital importance to the major industries of the northern area.

Lubricating Oil and Grease

Meeting of National Federation

THE fifth annual general meeting of the National Lubricating Oil and Grease Federation was held in London last week, when Mr. H. Bell Thompson, of Sterns, Ltd., was elected president. At the annual dinner, Sir Beddoes Rees, M.P., responding to the toast of "British Industries," said that in a very literal sense the oil industry was essential to industry generally, because the very essence of industry was the turning of a wheel, and without oil the wheels would not turn. He looked forward to the time when the coal industry would supply the oil industry with its oil. If the systems now being developed, particularly in Germany, for the extraction of oil from coal proved to be successful, it would be unnecessary to import crude oil. He had a coal seam producing coal with a volatile content of about 35 per cent., and if the oil could be extracted from that coal at a temperature of 400° C., he could supply crude oil at very much lower prices than those ruling to-day.

Coal Products, Chemical and Engineering Exhibition

IN connection with the above exhibition, which has been organised by the Manchester Section of the Society of Chemical Industry, a comprehensive exhibit of models, drawings, and photographs, illustrative of plant and process in the coal and allied industries, is being arranged. Firms desirous of including such models, photographs, and drawings should write immediately to the Honorary Local Secretary of the Society of Chemical Industry, College of Technology, Manchester, stating the nature of the models, etc., which can be loaned and the approximate size. Those participating will be required to deliver models at the City Hall, Manchester, before Friday, November 12, and must arrange to pack and collect same at the close of the exhibition on November 27. The Manchester Section of the Society of Chemical Industry will not accept liability for damage to any exhibit during the course of the Exhibition, but reasonable care will be exercised.

Company News

OAKBANK OIL CO.—On account of the difficult conditions prevailing in the shale oil industry, the directors regret that they think it advisable to postpone the consideration of a dividend on the 6 per cent. preference shares until the accounts for the year ending March 31 next are available.

PAN DE AZUCAR NITRATE CO.—The directors announce a final dividend of 10 per cent., less tax, in respect of the year ended June 30, 1926, making a total distribution for the year of 15 per cent., leaving to carry forward £17,268. The dividend for the previous year was 25 per cent., and £8,457 was carried forward.

ZINC CORPORATION.—A dividend of 2s. per share, or 10 per cent., has been declared on the preference shares, being the last half of the fixed preferential dividend for 1926, and also an interim participating dividend of 3s. per share on both the preference and ordinary shares, being 15 per cent. on the former and 30 per cent. on the latter, payable on January 3, less tax at 2s. 3d. in the pound. A similar distribution was announced a year ago.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

ESSENTIAL OILS, ESSENCES, ETC.—A firm of manufacturers' agents in Vancouver desire to represent on a commission basis in British Columbia only British producers of the above-mentioned lines. (Reference No. 546.)

CEMENT, ETC.—A firm of commission agents in Trinidad who represent important exporters desire to obtain the representation of shippers of galvanised iron, cement, etc. (Reference No. 545.)

HYDRAULIC, ASBESTOS, METALLIC, COTTON HEMP AND RUBBER PACKINGS.—H.M. Consul-General at Strasbourg, France, reports that a local firm of well-known insulating and lubricating specialists desire to receive from British manufacturers particulars and prices, together with samples of hydraulic, asbestos, metallic, cotton hemp, and rubber packings. British firms in a position to offer British materials can obtain further particulars on application to the Department of Overseas Trade. (Reference A.X. 3778.)

X-RAY APPARATUS.—The Commercial Secretary at Alexandria reports that the Egyptian Ministry of the Interior is calling for tenders to be presented by December 1 for X-ray apparatus. Firms desirous of offering X-ray apparatus of British manufacture can obtain further particulars of the inquiry upon application to the Department of Overseas Trade. (B.X. 2999.)

Indian Indigo Crop Forecast

THE first all-Indian indigo crop forecast for 1926-27 has just been issued. This forecast is based on reports received from the provinces of Madras, United Provinces, Bihar and Orissa, Punjab, Bombay, and Bengal, which contain about 85 per cent. of the total area under indigo in India. The total area sown is estimated at 99,300 acres, which is 11 per cent. below the corresponding estimate of last year. The total yield of dye is estimated at 19,600 cwt. as compared with 22,000 cwt., the corresponding estimate (revised) of last year, or a decrease of 11 per cent. Seasonal conditions have, generally, been favourable and the present condition of the crop is, on the whole, reported to be fairly good. Detailed forecast figures for the provinces as follows (figures are in parentheses indicate corresponding values last year): Madras, area under crop 40,100 acres (55,600), yield 9,600 cwt. (13,900); United Provinces, area under crop 15,100 acres (14,000), yield 1,700 cwt. (1,600); Bihar and Orissa, area under crop 13,500 acres (16,600), yield 1,600 cwt. (2,100); Punjab, area under crop 27,500 acres (20,600), yield 6,200 cwt. (3,800); Bombay (including Sind and Indian States), area under crop 3,200 acres (4,400), yield 500 cwt. (600). In Bengal the cultivation of indigo has been practically abandoned.

Tariff Changes

GERMANY.—Reductions are provided for in the German Customs-import duties on certain goods by the Commercial Treaty between Germany and Switzerland which was signed on July 14. The treaty is to replace the commercial treaties and agreements governing the commercial relations between the two countries. It is not to come into operation until one month after the exchange of ratifications, which has not yet taken place. The reduced duties will, of course, be applicable to similar goods of United Kingdom origin on importation into Germany. In the following list the figures indicate the reduction of import duty in Reichsmarks per 100 kg.: caustic soda, reduction from 4.5 to 4 Reichsmarks; perchlorate of potash not in shells or capsules, reduction from 4 to 2.5; grafting mastic (alcoholic grafting wax), reduction from 30 to 15; metaldehyde, solid ("Meta") fuel, reduction from 40 to 20; nicotine, crude or purified, free of duty; nicotine compounds, from 1,000 to 400; medicines and other pharmaceutical products not mentioned or included elsewhere in the tariff, prepared, reduction from 300 to 175, unprepared, reduction from 200 to 110.

SWITZERLAND.—The treaty mentioned above under Germany will result in the reduction of tariffs on goods imported into Switzerland from Germany. The reduced duties will, of course, apply to similar goods of United Kingdom origin. The goods include the following, the figures showing where necessary the present duty and reduced duty in francs per 100 kg.:—ammonium chloride, ammonium sulphate-nitrate (ammonium sulphate saltpetre) and urea, subject to proof of use as fertilisers, duty under treaty fixed at 1 fr.; liquefied gases not specified in the tariff, reduction from 5 to 3 fr.; Schweinfurt green (pure or mixed with chalk), magnesia or the like (e.g., unspecified inorganic prepared auxiliary materials for industrial purposes), duty under treaty fixed at 3 fr.; coloured earths and mineral colours, brightened, reduction from 25 to 20; bronze colours of all kinds, even if prepared, reduction from 150 to 50; adhesive substance for linoleum composed of a solution of sulphate of cellulose and chalk, reduction from 10 to 2.5.

ROUMANIA.—The British Commercial Secretary at Bucharest has forwarded a copy of a list of pharmaceutical products of foreign manufacture of which the importation and sale in Roumania are authorised by the Direction-General of the Sanitary Service. British firms interested can consult the list referred to on application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1.

Institution of Chemical Engineers

THE annual reception of the Institution of Chemical Engineers was held on Wednesday at the Gallery of the Royal Society of Painters in Water Colours, the winter exhibition of the society being on view. Sir Frederic L. Nathan, president, received the guests. The Royal Artillery band was in attendance. A very large number of guests attended, and the accommodation was taxed to the utmost. Among those who accepted invitations were Mr. Mackenzie King, Mr. W. S. Monroe, Professor H. E. Armstrong, Dr. E. F. Armstrong, Sir Arthur Duckham, Mr. F. H. Carr, Sir Frank Heath, Sir Herbert Jackson, Sir Joseph E. Petavel, Sir Robert Robertson, Sir John Russell, Sir Napier Shaw, Dr. Graham Little, Mr. Chaston Chapman, Mr. C. A. Klein, Mr. D. Milne Watson, Dr. H. Houlston Morgan, and Dr. A. Rosenbain.

European Glue Syndicate

As reported a short time ago, a European glue syndicate is being formed. As a first result of the negotiations a "Union for the Study and Improvement of the Bone-glue Industry" has come into being. The committee of the union will attend to the affairs of the syndicate, and for this purpose a company called the "Epidos Co.," with a capital of 100,000 francs, has been established in Glarus, Switzerland. The syndicate comprises all European countries except Bulgaria, Greece, Norway, Finland, Portugal, and Russia. Regulations regarding minimum prices, etc., will be laid down by the committee, and will be binding upon the separate members. As a result of the formation of this syndicate, competition will be largely eliminated, and prices will probably be raised.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

HALL (WILLIAM) AND CO. (MONSALL), LTD., Monsal¹ Dye Works, Newton Heath, Manchester. (C.C., 6/11/26.) £123 os. 8d. September 13.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

CONSOLIDATED METAL AND BYE-PRODUCT CO., LTD., Swansea. (M., 6/11/26.) Registered October 25, debenture to bank, charged on property at Gwernllwynchwyth, Llansamlet, also general charge.

DOVEY VALLEY SILICA SYNDICATE, LTD., London, E.C. (M., 6/11/26.) Registered October 26, £250 debentures, part of £5,000; general charge. *Nil. December 31, 1925.

INTEGRAL OXYGEN CO., LTD., London, S.W. (M., 6/11/26.) Registered October 21, £500 debenture and £1,000 debenture to Peter Brotherhood, Ltd., Peterborough, manufacturers, and International Electrolytic Plant Co., Ltd., 41, Temple Row, Birmingham; general charges. *£1,321 18s. 4d. December 31, 1925.

Satisfaction

R. M. P., LTD., Birmingham, mica producers. (M.S., 6/11/26.) Satisfaction registered October 23, £100, registered October 1, 1925; £300, registered November 9, 1925; £307, registered December 3, 1925; and £300, registered July 17, 1926.

London Gazette, &c.

Companies Winding Up Voluntarily

BOURNE, JOHNSON AND CO., LTD. (C.W.U.V., 6/11/26.) A. E. Tilley, 8, Staple Inn, Holborn, London, W.C.1, Chartered Accountant, appointed liquidator, October 20. Meeting November 8, 8, Staple Inn, Holborn, at 2.45 p.m. Creditors' claims by November 12.

HULSE (F.) AND CO., LTD. (C.W.U.V., 6/11/26.) C. C. Murgatroyd, Accountant, 1, Cookridge Street, Leeds, appointed liquidator, October 26. Meeting of creditors, Leeds Law Institute, 1, Albion Place, Leeds, Friday, November 12, at 2 p.m.

Application for Discharge

ROTH, James Bertram, trading as J. B. ROTH AND CO., 21, Cannon Street, Manchester, chemical and colour merchant. (A.F.D., 6/11/26.) Hearing, November 29, 10.15 a.m., Court House, Quay Street, Manchester.

New Companies Registered

J. AND J. CUNNINGHAM (LONDON), LTD., 47, Mark Lane, E.C.4. Private co. Registered October 28. Nom. capital, £20,000 in £1 shares. To carry on the business of merchants, importers and exporters, and manufacturers of grain, feeding stuffs, fertilisers, and artificial manures, etc. Directors: A. P. Cross, Lamport Hall, Northampton; R. Cross and J. C. Menzies.

SIMON EXTRACTING MACHINE SYNDICATE, LTD. Registered October 27. Nom. capital, £40,000 in 37,500 10 per cent. cumulative preferred ordinary shares of £1 and 50,000 deferred shares of 1s. each. To carry on the business of extractors and refiners of and dealers in oils, fats, waxes, and greases of all kinds and the residual products thereof, manufacturers and merchants of machinery, apparatus used in the extraction of oil, fats, waxes, and greases, and to adopt an agreement with L. J. Simon and Simon Bros. (Engineers), Ltd. Directors: H. Bourke-Burrowes, L. J. Simon and R. G. Clarry. Solicitors: Herbert Smith and Co., 62, London Wall, London.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent and Trade Mark Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to November 20, 1926.

"FIRMOSOL."

473,099. Asphaltum, bitumen, tar, pitch, and preparations made therefrom. Class 4. The Acme Flooring and Paving Co. (1904), Ltd., Gainsborough Road, Victoria Park, London, E.9, manufacturers and contractors. September 16, 1926. (To be Associated. Sect. 24.)

"RITOLASTIC."

471,227. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Class 1. The Liverpool Borax Co., Ltd., Old Swan Works, Borax Street, Liverpool, Lancashire, manufacturers. July 7, 1926.

"AMBRONITE."

472,435. For peroxide of manganese. Class 1. Dunford and Elliott (Sheffield), Ltd., Attercliffe Wharf Works, Chipingham Street, Sheffield, manufacturers; and Peter Bergendorff, Hamngatan, 1, Stockholm, Sweden, merchant. August 21, 1926.

Opposition to the Registration of the following Trade Marks can be lodged up to November 27, 1926.

"ZENITH."

Raw or partly prepared vegetable animal and mineral substances used in manufactures. Class 4. John Miller and Co. (Liverpool), Ltd., 24, Chapel Street, Liverpool; merchants. November 4, 1925.

"BITUGRIP."

473,118. A liquid bitumen, being a raw or partly prepared mineral substance used in manufactures. Class 4. John Cooke and Son (Huddersfield), Ltd., Little Royd, Huddersfield, Yorkshire; public works contractors. September 17, 1926.

"BENZAC."

472,827. A benzine-proof and acid-proof paint. Class 1. Mak Holzappel, The Marians, Barnet Lane, Elstree, Hertfordshire; manufacturer. September 6, 1926.

"BICETIC."

472,184. For chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Class 1. William Frederick Sadler, 8, 9, and 10, Great St. Helens, London, E.C.3; merchant. August 11, 1926.

"PERMINAL."

472,608. For chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Class 1. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester; manufacturers of dyestuffs and chemicals. August 28, 1926. (To be associated. Sect. 24.) 472,609. Raw, or partly prepared, vegetable, animal and mineral substances, Class 4.

"GRAPHMAC."

472,863. Paints, varnishes, enamels, dry colours, distempers, japans, lacquers and anti-corrosive oils. Class 1. Hadfields (Merton), Ltd., Western Road, Mitcham, Surrey; enamel manufacturer. September 8, 1926.

